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FIFTEENTH
ANNUAL CATALOGUE
OF THE
AGRICULTURAL AND MECHANICAL COLLEGE
OF TEXAS.

SESSION 1890-91

RAILROAD DEPOT, EXPRESS AND MONEY ORDER OFFICE:

COLLEGE STATION, TEXAS.



CLARKE & COURTS,
STATIONERS, PRINTERS, LITHOGRAPHERS,
GALVESTON, TEXAS.

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CALENDAR 1891.

JANUARY.							FEBRUARY.							MARCH.						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
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JULY.							AUGUST.							SEPTEMBER.						
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CALENDAR 1892.

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CALENDAR.

1891.

Fall Term begins Wednesday, September 9.

Anniversary Austin Society, November 15.

National Holiday, Thanksgiving Day.

Christmas Holiday, December 20 to January 2, 1892.

1892.

Winter Term begins Thursday, January 4, 1892.

National Holiday, February 22.

Spring Term begins March 9.

Anniversary Calliopean Society, March 16.

State Holiday, April 21.

Final Examinations begin June 2.

Commencement Sunday, June 6.

Exhibition of Departments and work of Students, June 7.

Commencement Day, June 8.

Agricultural and Mechanical College of Texas.

This College owes its origin to

An Act Donating Public Lands to the Several States and Territories which may
Provide Colleges for the Benefit of Agriculture and the Mechanic Arts.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land, to be apportioned to each State, a quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of eighteen hundred and sixty; provided, that no mineral lands shall be selected or purchased under the provisions of this act.

SEC. 2. And be it further enacted, That the land aforesaid, after being surveyed, shall be apportioned to the several States in sections or subdivisions of sections not less than one quarter of a section; and whenever there are public lands in a State subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said States shall be entitled shall be selected from such lands within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not the quantity of public lands subject to sale at private entry at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said States and the proceeds applied to the uses and purposes prescribed in this act, and for no other use or purpose whatsoever; provided, that in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States, but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry at one dollar and twenty-five cents or less per acre; and, provided further, that not more than one million acres shall be located by such assignees in any one of the States; and, provided further, that no such location shall be made before one year from the passage of this act.

SEC. 3. And be it further enacted, That all the expenses of management, superintendence and taxes from date of selection of said lands previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom, shall be paid by the States to which they may belong, out of the treasury of said States, so that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned.

SEC. 4. And be it further enacted, That all moneys derived from the sale of the lands aforesaid, by the States to which the lands are apportioned, and from

the sale of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in section fifth of this act), and the interest of which shall be inviolably appropriated by each State which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

SEC. 5. And be it further enacted, That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

First. If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund may remain undiminished; and the annual increase shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum not exceeding ten per centum upon the amount received by any State, under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, wherever authorized by the respective Legislatures of said States.

Second. No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings.

Third. Any State which may take and claim the benefit of the provisions of this act shall provide, within five years, at least not less than one college, as described in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay to the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid.

Fourth. An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their costs and results, and such other matters, including State industrial and economical statistics, as may be supposed useful, one copy of which shall be transmitted by mail free by each to all the other colleges which may be endowed under the provisions of this act, and also one copy to the Secretary of the Interior.

Fifth. When lands shall be selected from those which have been raised to double the minimum price, in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionately diminished.

Sixth. No State, while in a condition of rebellion or insurrection against the government of the United States shall be entitled to the benefits of this act.

Seventh. No State shall be entitled to the benefits of this act unless it shall express its acceptance thereof by its Legislature within two years from the date of its approval by the President.

SEC. 6. And be it further enacted, That land scrip issued under the provisions of this act shall not be subject to location until after the first day of January, one thousand eight hundred and sixty-three.

SEC. 7. And be it further enacted, That the land officers shall receive the same fees for locating land scrip issued under the provisions of this act as is now allowed for the location of military bounty land warrants under existing laws; provided, their minimum compensation shall not be thereby increased.

SEC. 8. And be it further enacted, That the Governors of the several States to which scrip shall be issued under this act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved July 2, 1862.

And to the following Amendment:

An act to amend the fifth section of act entitled "An act donating Public Lands to the several States and Territories which may provide Colleges for the benefit of Agriculture and the Mechanic Arts," approved July 2, eighteen hundred and sixty-two, so as to extend the time within which the provisions of said act shall be accepted and such Colleges established.

1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the time in which the several States may comply with the provisions of the act of July 2, eighteen hundred and sixty-two, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," is hereby extended so that the acceptance of the benefits of the said act may be expressed within three years from the passage of this act, and the colleges required by the said act may be provided within five years from the date of filing of such acceptance with the Commissioner of the General Land Office; provided, that when any Territory shall become a State and be admitted into the Union, such new State shall be entitled to the benefits of said act of July 2, eighteen hundred and sixty-two, by expressing acceptance therein required within three years from the date of its admission into the Union, and providing the college or colleges within five years after such acceptance, as prescribed in this act; provided further, that any State that has heretofore expressed its acceptance of the act herein referred to shall have the period of five years within which to provide at least one college, as described in the fourth section of this act, after the time for providing said college, according to the act of July 2, eighteen hundred and sixty-two, shall have expired.

Approved July 23, 1865.

By joint resolution, approved November 1, 1871, the Legislature of Texas formally accepted the provisions of the congressional acts, and the State received from the general government scrip for 180,000 acres of public land, the proceeds of which con-

stitute the present permanent endowment fund of this college, and is in Texas seven per cent gold frontier defense bonds, to the amount of \$174,000.

The Legislature fulfilled its obligations by passing "An act to provide for the establishment of an Agricultural and Mechanical College of Texas," approved April 17, 1871, and by making liberal successive appropriations—aggregating \$187,000—for the buildings and equipments necessary for putting the institution in operation. And the county of Brazos secured its location within its limits by donating to the State the present College farm, a tract of 2416 acres, five miles south of the town of Bryan.

Finally, the Constitution of 1876, article VII, provided: "Section 13. The Agricultural and Mechanical College of Texas, established by the Act of the Legislature, passed April 17, 1871, located in the county of Brazos, is hereby made and constituted a branch of the University of Texas, for instruction in agriculture, the mechanic arts, and the natural sciences connected therewith."

The College was formally opened for the reception of students October 4, 1876.

The Constitution of Texas provides that taxes may be raised for the maintenance and support of the College.

The following Act of the Legislature of Texas is now the law governing the College:

An Act Regulating the Government of the Agricultural and Mechanical College of Texas, as approved March 9, 1875, and amended March 30, 1881.

I. The Board of Directors of said College shall consist of five members.

II. The Directors provided for in the preceding article shall be appointed by the Governor, to be selected from the different sections of the State, and shall hold office for six years, or during good behavior, and until their successors are qualified.

III. The Governor shall be authorized to call said Board together after their appointment, and said Board shall at their first meeting elect a President of the Board, who shall thereafter be authorized to call said Board together for the transaction of business whenever he deems it expedient, and a majority of said Board shall constitute a quorum for the transaction of business.

IV. Each of the said Directors shall receive their actual expenses incurred in attending the meeting of the Board, to be paid out of the interest of the University fund, on accounts certified by them respectively to be correct, and approved by the Governor.

V. The Secretary of State shall forward a certificate to each Director within ten days after his appointment, notifying him of the fact of such appointment; and should any Director so appointed and notified fail for ten days to give notice

to the Governor of his acceptance, his appointment shall be deemed void and his place filled as in case of vacancy.

VI. The Board of Directors shall appoint the President and Professors of the College, and such other officers as they may think proper to put the College into successful operation, and shall make such by-laws, rules and regulations for its government as they may deem meet and proper for that purpose, and shall regulate the course of study, rates of tuition, manner of performing labor, and the kind of labor to be performed by the students, together with the course of discipline necessary to enforce the faithful discharge of all the duties of all officers, professors and students, and shall have same printed and circulated for the benefit of the people of the State and officers and students of the College.

VII. The Board of Directors shall elect a Secretary of the Board, whose duty it shall be to keep in a well bound book all the proceedings had by this Board, and he shall be allowed by said Board such compensation as they may allow; provided, that the same does not exceed five hundred dollars per annum.

VIII. The interest on the amount of one hundred and seventy-four thousand dollars in seven per cent gold interest-bearing frontier bonds of Texas, now in the State treasury to the credit of the College, being set apart for that purpose, shall be drawn by the Board of Directors on vouchers audited by the Board, or approved by the Governor and attested by the Secretary, and on filing such vouchers the Comptroller shall draw his warrant on the State Treasury for the same, from time to time as they may be needed, to pay the Directors, officers and professors of the College.

The following Joint Resolution was passed by the Sixteenth Legislature:

Joint Resolution authorizing the State Librarian to turn over to the Agricultural and Mechanical College of Texas Specimens of Minerals and other Geological Specimens in the Geological Department in said Library in certain cases, and copies of all Public Documents of the State, published for distribution, and all Apparatus belonging to the old Geological Survey.

SECTION 1. *Be it resolved by the Legislature of the State of Texas*, That the State Librarian be and he is hereby authorized and required to turn over to the Agricultural and Mechanical College of Texas the duplicate specimens in the hands of the agent of the International Railroad Company of all minerals and other geological specimens in the Geological Department in said Library, and copies of all public documents of the State published for distribution, and apparatus belonging to the old geological survey, for the use and benefit of said College.

SEC. 2. That said Librarian be required to take an inventory of all specimens thus turned over to said College by him, and file the same in his office.

SEC. 3. The near approach of the close of this session of the Legislature, and the pressing need of geological specimens at said College for the better instruction of its pupils, creates an imperative public necessity for the suspension of the constitutional rule requiring this resolution to be read on three several days; therefore, be it further resolved, that the constitutional rule be suspended and this resolution take effect and be in force from and after its passage.

Approved July 9, A. D. 1879.

Texas Agricultural Experiment Station.

ORIGIN.

The Agricultural Experiment Station has been established by the Congress of the United States, as shown by the following bill. This will be of great benefit to the agricultural course :

Full Text of the Experiment Station Bill as enacted by Congress and approved by the President.

An Act to establish Agricultural Experiment Stations in connection with the Colleges established in the several States under the provisions of an Act approved July 2, 1862, and of the acts supplementary thereto.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges, or agricultural department of colleges, in each State or Territory, established, or which may be hereafter established, in accordance with the provisions of an act approved July 2, 1862, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "Agricultural Experiment Station;" provided, that in any State or Territory in which two such colleges have been or may be so established, the appropriation hereinafter made to such State or Territory shall be equally divided between such colleges, unless the Legislature of said State or Territory shall otherwise direct.

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches to verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case

be deemed advisable, having due regard to the varying conditions and needs of the respective States and Territories.

SEC. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate, from time to time, such lines of inquiry as to him shall seem most important, and in general to furnish such advice and assistance as will best promote the purposes of this act. It shall be the duty of each of said stations, annually, on or before the first day of February, to make to the Governor of the State or Territory in which it is located, a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

SEC. 4. The bulletins or reports of progress shall be published at said stations at least once in three months; one copy of each shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins, or reports, and the annual reports of said stations shall be transmitted in the mails of the United States free of charge of postage, under such regulations as the Postmaster General may from time to time prescribe.

SEC. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments and printing and distributing the results as hereinbefore prescribed, the sum of \$15,000 is hereby appropriated to each State, to be specially provided for by Congress in the appropriations from year to year, and to each Territory entitled under the provisions of section 2 of this Act, out of any money in the treasury proceeding from the sale of public lands, to be paid in equal quarterly payments on the first day of January, April, July, and October of each year, to the treasurer or other officer duly appointed by the governing boards of said Colleges to receive the same, the first payment to be made on the first day of October, 1887; provided, however, that out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five (5) per centum of such annual appropriations may be so expended.

SEC. 6. That whenever it shall appear to the Secretary of the Treasury, from the annual statement of receipts and expenditures of any of said stations, that a portion of the preceding annual appropriations remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this Act shall be construed to impair or modify the legal relation existing between any of the said colleges and the governments of the States and Territories in which they are respectively located.

SEC. 8. That in States having colleges entitled under this section to the benefits of this Act, and having also Agricultural Experiment Stations established by law separate from said colleges, such States shall be authorized to apply such benefits to experiments at stations so established by such States ; and in case any State shall have established, under the provisions of said Act of July 2, aforesaid, an agricultural department or experimental station in connection with any university, college, or institution not distinctively an agricultural college or school, and such State shall have established, or shall hereafter establish, a separate agricultural school, which shall have connected therewith an experimental farm or station, the Legislature of such State may apply, in whole or in part, the appropriation by this Act made to such separate agricultural college or school ; and no Legislature shall, by contract, expressed or implied, disable itself from so doing.

SEC. 9. That the grants of moneys authorized by this Act are made subject to the legislative assent of the several States and Territories to the purpose of said grants ; provided, that payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its Legislature meeting next after the passage of this Act shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

SEC. 10. Nothing in this Act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all of the States or institutions mentioned in this Act, but Congress may, at any time, amend, suspend or repeal any or all of the provisions of this Act.

ORGANIZATION.

In 1887 Congress made provision for establishing, equipping, and supporting agricultural experiment stations in the several States, the stations to be placed under the supervision of the Boards of Directors of the State Agricultural and Mechanical Colleges, where such colleges have been established.

The Act of Congress appropriates \$15,000 per annum from the United States Treasury, to each State, to equip and support the stations. Owing to some technical defect in the bill as passed, additional legislation was required to make the fund available. By recent enactment the appropriation is placed at the disposal of the several States, and the stations are being organized.

OBJECT OF THE STATIONS.

The purpose for which the agricultural experiment station bill was passed is clearly set forth in section 2 of the Act, which reads as follows :

“It shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as furnished under a varying series of crops; the capacity of new plants or trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effect on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese, and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable.”

The bill further provides that reports of the progress made in experiments shall be published from time to time, one copy of which shall be sent to each newspaper published in the State where such station is located, and one to each individual actually engaged in farming who may request the same, as far as the means of the station will permit; all such reports to be carried in the mails free.

The experiment stations were placed under the supervision of the Boards of Directors of the Agricultural and Mechanical Colleges, not for the purpose of assisting the Colleges, but because it was thought the fund would be most judiciously expended under such control, and it was believed that a portion of the equipment of said Colleges, in the way of land, stock, implements, etc., might, without detriment to the work of the Colleges, be used to some extent in experimental work. It was thought also that men employed at the Colleges, many of whom have become skilled in experimental work, would be able to give part of their time to the station.

EXPENDITURE OF THE STATION FUND.

The bill expressly provides that no part of the fund appropriated shall be used for any purpose other than equipping and supporting an establishment for carrying on experimental work. While the stations may be attached to the agricultural colleges and be made departments of the same, no part of this fund may be used in support of the colleges, except in experimental work.

ADVANTAGE TO COLLEGE.

Financially, the station will not be of direct benefit to the College. To compensate the College, however, for the use of property assigned to the work of the station, such work will add largely to the ability of the College to impart more thorough instruction in scientific and practical agriculture. College students will be employed in the work of the Station to as great an extent as may be found practicable, and the plant of the station, and experimental work in progress, will increase the means of illustration of the College and be of special advantage to the students in providing practice and training in agricultural work, under skilled instructors. The Station will not add to the expenses of the College in any way, as such time as may be given by professors or other employees in experimental work will be paid for from the Station fund, and the value of the time lost to the College deducted from the salary that would be paid by the College if the entire time was given to College work; and in order not to impair the efficiency of instruction the Board has provided for additional instructors to relieve the professors of a portion of their class work.

The Board of Directors of the College desire to make the work of the station of as much value to the agricultural interests of the State as may be possible. The work will be conducted at all times with special reference to giving information that may be of some practical use to the farmer. To enable them to carry out this policy, all associations having the advancement of agriculture in view—the Grange, Alliance, associa-

tions of Stock Breeders, or Fruit Growers, or other organizations—will be invited from time to time to appoint delegates to meet with the Board of Directors and the Council, and consult and advise with them in regard to the work of the Station. Suggestions will be gladly received at all times from any one who is interested in advancing the agricultural interests of the State.

ORGANIZATION.

In accordance with the act of Congress, the Board of Directors of the Agricultural and Mechanical College of Texas, at a meeting held January 25, 1888, established the Experiment Station as a department of the College. Provision was made for assigning to the Station department such part of the College farm, buildings and other equipment of the College as would be found necessary to prosecute the work, in addition to the outfit supplied from the funds of the Station.

The Director of the Station will have general supervision of all experimental work, correspondence, and publication of bulletins and reports.

The professors of Agriculture, Chemistry, Horticulture, Physics, and Veterinary Science will have charge of station work in their several departments.

Board of Directors.

The government of this College is vested in a Board of Directors, consisting of five members, appointed by the Governor of the State. They are “selected from different sections of the State, and hold office for six years, or during good behavior, and until their successors are qualified.”

HON. A. J. ROSE, President	Salado
HON. W. R. CAVITT,	Bryan
HON. JOHN E. HOLLINGSWORTH, Commissioner of Insurance, Sta- tistics, History, and Agriculture, <i>ex-officio</i>	Austin
DR. J. D. FIELDS	Manor
HON. JNO. ADRIANCE	Columbia

The Board of Directors of the College are also the governing Board of the Experiment Station.

Faculty and Other Officers.

L. S. ROSS, PRESIDENT.

W. L. BRINGHURST, Ph. D., VICE PRESIDENT,
Professor of English and History.

RUD. WIPPRECHT,
Professor of Languages.

R. H. WHITLOCK, M. E.,
Professor of Mechanical Engineering.

GEO. W. CURTIS, M. S. A.,
Professor of Agriculture.

H. H. HARRINGTON, M. S.,
Professor of Chemistry and Mineralogy.

CHARLES PURYEAR, M. A.,
Professor of Mathematics.

MARK FRANCIS, D. V. M.,
Professor of Veterinary Science.

LIEUT. BENJ. C. MORSE, 23RD INFANTRY, U. S. A.
Professor of Military Science and Commandant of Cadets.

F. E. GIESECKE, M. E.,
Associate Professor of Drawing.

S. A. BEACH, B. S. A.,
Associate Professor of Horticulture and Botany.

J. C. NAGLE, B. Sc.,
Associate Professor of Engineering and Physics.

ROBT. F. SMITH,
Adjunct Professor of Mathematics.

W. B. PHILPOTT, M. S.,
Assistant Professor of English and History.

P. S. TILSON, B. S. A.,
Assistant Professor of Chemistry.

A. M. GÜNTHER,

Instructor in Blacksmithing.

H. NESS, B. S.,

Assistant Professor of Horticulture and Botany.

J. M. CARSON,

Assistant Professor of Agriculture.

REV. T. C. BITTLE,

Chaplain and Librarian.

PROFESSOR GIESECKE,

Secretary of the Faculty.

J. D. READ, M. D.,

Surgeon.

E. W. HUTCHINSON, B. C. E.,

Bookkeeper.

B. SBISA,

Steward.

C. A. LEWIS,

Foreman of Carpenter Shop.

J. B. WATTS,

Stockman.

J. H. ALSWORTH,

Foreman of Farm.

G. EBERSPÄCHER,

Foreman of Garden and Green House.

J. S. FOWLKES,

Fiscal Agent.

OFFICERS OF THE EXPERIMENT STATION.

GEO. W. CURTIS, M. S. A.....	Agriculturist and Director.
H. H. HARRINGTON, M. Sc..	Chemist.
M. FRANCIS, D. V. M.....	Veterinarian.
S. A. BEACH, B. S. A.....	Horticulturist.
D. ADRIANCE, M. S.....	Meteorologist, Assistant Chemist.
J. W. CARSON	Assistant to Director.
J. M. CARSON.....	Assistant Agriculturist.
P. S. TILSON, B. S. A.	Assistant in Chemistry.
J. S. FOWLKES.....	Fiscal Agent.
L. S. ROSS.....	Treasurer.

Catalogue of Students.

EXPLANATION.

M. S., Master of Science. B. M. E., Bachelor of Mechanical Engineering.
B. S. A., Bachelor of Scientific Agriculture. B. C. E., Bachelor of Civil Engineering. M., Mechanical Course. B. S. H., Bachelor of Scientific Horticulture.
A., Agricultural Course.

POST-GRADUATE STUDENTS.

NAM S.	COURSE.	POSTOFFICE.
Banks A. L	B. S	Bryan
Carson J. W	B. S	College Station
Carson J. M	B. S	College Station
Ness H	M. S	College Station
Tilson P. S	M. S	College Station

UNDERGRADUATE STUDENTS.

FIRST CLASS.

NAMES.	COURSE.	POSTOFFICE.
Ahrenbeck William T	B. M. E	Navasota
Cushing Dan	B. M. E	Houston
Dashiell Walter R	B. C. E	San Antonio
Field Herbert Y	B. S. A	Dallas
Henderson Hal	B. S. A	Aransas
Luckett William H	B. S. A	Bastrop
Littlejohn Robert G	B. C. E	Fort Worth
McCormick George, Jr	B. M. E	Columbus
Merriwether William T	B. C. E	Pearsall
Middlebrook Robert M	B. M. E	Columbus
Morrill Clifford R	B. C. E	Austin
Nichols William L	B. C. E	Dallas
Ortiz Jose A	B. M. E	Laredo
Pfeuffer Ulrich S	B. C. E	New Braunfels
Welhausen Charles B	B. M. E	Flatonia
Whealan James J	B. M. E	College Station
Whitener Harry L	B. S. A	Burton

SECOND CLASS.

NAMES.	COURSE.	POSTOFFICE.
Adams Frank	B. S. A	Stafford
Allen William W	B. C. E	Marlin
Altgelt Ernest J	B. C. E	San Antonio
Alexander Angus E	B. S. A	Terrell

NAMES.	COURSE.	POSTOFFICE.
Alexander Charles A	B. S. A	Terrell
Bailey Charles C	B. C. E	Salado
Bellah John L	B. C. E	St. Joe
Beesley Walter S	B. C. E	Lancaster
Beyer Fred C	B. M. E	Marion
Bennett Theo. J	B. S. H	Columbia
Bissell Daniel L	B. C. E	Dallas
Boykin Rufus E	B. M. E	Paint Rock
Brossmann August H	B. S. A	Bellville
Brown Fred W	B. C. E	Calvert
Buford Frank L	B. C. E	Beaumont
Buhler Chris. W	B. C. E	Victoria
Cabell Duval L	B. C. E	Dallas
Cook Edward A	B. M. E	Cresson
Cottingham Wesley P	B. C. E	Thomaston
Cox DeWitt S	B. C. E	Giddings
DeWitt George P	B. C. E	Paris
Doke Morris Y	B. C. E	Kosse
Duncan William T	B. C. E	Merrilton
Ellis Billie V	B. S. A	Paris
Ellis Jerry F	B. C. E	Fort Worth
Floyd Josiah F	B. M. E	Texarkana
Girand James B	B. C. E	Graham
Giesecke William E	B. M. E	New Braunfels
Grupe George	B. C. E	Liverpool
Gurley David R	B. C. E	Waco
Harkness William B	B. C. E	Pearsall
Jarmon Elihu P	B. C. E	Weimar
Johnson Howard L	B. S. A	Flatonia
Kyle Thomas M	B. M. E	Nursery
Massengale Percy S'	B. S. A	Maysfield
Merritt Robert C	B. S. A	Melissa
Moore Thomas E	B. S. A	Gonzales
Moore Robert	B. S. A	Linden
McNutt Joseph Y	B. S. A	Calvert
Neathery Daniel E	B. S. A	Farmersville
Neathery William	B. S. A	Farmersville
Oliphint Thomas W	B. C. E	Huntsville
Ragsdale Charles A	B. S. A	Flatonia
Ratchford William P	B. M. E	Paint Rock
Sauvignet Edward H	B. S. A	Laredo
Schmidt Dietrich C	B. C. E	Perry
Schuhmacher Henry C	B. C. E	LaGrange
Shirley Thornton S	B. C. E	Melissa
Slaughter Louis H	B. C. E	Bremond
Watkins William A	B. C. E	Prairieville
Wright Edgar	B. C. E	Paris

THIRD CLASS.

NAMES.	COURSE.	POSTOFFICE.
Anderson George S	A	Thomaston
Bates Vivian L	A	Bremond
Barry James B	M	Walnut
Baker William R	M	Salado
Blake Mack B	A	Dallas
Brennand Robert S	A	Colorado City
Burtschell Thomas L	A	Wallis
Burford Jefferson N	A	Dallas
Buchanan James R	M	Hallettsville
Burleson Lemuel R	M	Bastrop
Burgess Alfred R	A	Seguin
Burgess Richard F	A	Seguin
Buchanan Samuel R	M	Bastrop
Bryan William J	A	Velasco
Brantley Thomas W	M	Bryan
Carson Winrow B	A	Sherwood
Campbell Charles M	M	Belton
Campbell Thomas T	M	Belton
Crenshaw Robert L	M	Oenaville
Dalton James W	M	Taylor
Dysart Jack	M	Anna
Dysart James L	M	Anna
Douglass Charles B	M	Melissa
Eichlitz Charles E	M	Victoria
Eichlitz John R	M	Victoria
Foley Joseph D	M	Galveston
Fowler Maynard W	M	Bastrop
Frymier John E	A	Cleburne
Fulkerson Vance S	M	Bryan
Garrett Edward P	A	Brenham
Garner Jacob E	M	Port Lavaca
Gibson William C	M	Gainesville
Goree Herbert T	M	Huntsville
Green Henry C	M	Cameron
Guinn Marvin	A	New Braunfels
Hamilton Gaines N	A	Paris
Heard John B	M	San Antonio
Häuschild Henry J	M	Victoria
Hawkins John W	A	Hallettsville
Hill James A	A	Roger's Prairie
Hildebrandt Otto C	M	Milano
Henderson Daniel D	A	Jasper
Howard Thomas F	M	Boerne
Hughes Harry H	M	Salado
Hutchinson Oscar D	A	Denton

NAMES.	COURSE.	POSTOFFICE.
Jennings George D	M	Tonica, Illinois
Josey Edward M	M	Huntsville
Jordan William L	A	Josephine
Kroll Theodore	M	Biegel
Lake Thomas W	A	Fort Worth
Lewis Lowry L	A	Rhea's Mill
Long Ralph W	M	El Paso
Luckett Alfred M	A	Fort Worth
Luckett Worth M	M	Bastrop
Lynch Richard M	M	Dallas
Mason William H	A	Brownsville
Marston Charles S	M	Houston
Moore Sidney B	M	Plano
Moore Wood A	M	Galveston
Metcalf Wallace P	M	Waxahachie
Myers Waldo G	M	Hico
McLaury John D	A	Fort Worth
McKenzie James F	A	Prairie Lea
McLain Clarence E	M	Waxahachie
McCormick Thornton T	M	Columbus
McCutcheon Bennett B	M	Sweet Home
McCaleb John D	M	Willis
McDaniel Samuel E	A	Lytle
Naylor Charles H	A	Fort Worth
Nersworthy Oscar L	M	Jasper
Overaker Cortland E	M	Plano
O'Bar John H	M	Warrenton
O'Bar Olvin A	M	Warrenton
Parsons Bert C	A	Keirville
Parsons Elmer C	M	Kerrville
Pendleton Charles D	A	Farmersville
Pendleton William F	A	Farmersville
Penn Charles L	A	Waxahachie
Pearson Hilby A	M	Baileyville
Perrenot Earle E	M	Victoria
Rainey Frank N	M	Waxahachie
Ross Thomas B	M	Cold Springs
Rollins Charles W	M	Merritt
Rochelle Jettie B	A	Texarkana
Rosenthal Alfred J., Jr	A	La Grange
Sansing Campbell	A	Blossom
Schleicher Fletcher S	M	Cuero
Simons Verner A	A	Taylor
Sittman Clarence M	M	Taylor
Shepard Chauncey B	M	Bryan
Smith Joseph A	A	Fort Worth
Smith Frederick C	A	Fort Worth

NAMES.	COURSE.	POSTOFFICE.
Smither Allen T	M	Huntsville
Steedman John R	M	Steedman
Swan Joseph P	M	Henrietta
Thompson John H	A	Nelsonville
Thornton Lyle G	M	La Grange
Trousdale William T	A	La Grange
Watson William D	A	Bryan
Weldon Stayton E	A	Cuero
Weidel Joseph	M	Hallettsville
Wilson Willett	M	Avalon
Wilson James E	M	Bastrop
Yarborough Charles R	M	Mansfield, La.

FOURTH CLASS.

NAMES.	POSTOFFICE.
Adams Walter D	Forney
Allen William A	Flatonia
Alsworth Richmond	College Station
Anderson Owen T	Ingram
Appleby William B	Goliad
Appleby Richard P	Goliad
Astin Joseph P	Bryan
Bartholomaie Charles A	San Antonio
Besteiro Alberto	Brownsville
Barrow Edward B	Dallas
Bice Thomas C	Brookston
Bittle William A	College Station
Bittle Percy B	College Station
Bittle Frank	College Station
Bloor David S	Manor
Bloor Alfred W	Manor
Bringhurst Sam H	College Station
Brown Vincent D	Clarksville
Burleson Robert D	Bastrop
Burleson Jefferson B	Manor
Buchanan Paul B	Hallettsville
Byars Ralph C	Columbus
Carr Charles O	Bryan
Carter Eugene W	Waco
Clay James R	Independence
Conway John W	Kerrville
Curtis John W	Henrietta
Davis William D	Houston
Dazey William	Fort Worth
Deweese Oscar	San Antonio
Derden Edgar S	Bryan
Dinwiddie Robert L	Austin
Dove Archie H	Corpus Christi

NAMES.	POSTOFFICE.
Douglass Elbridge H	Rusk
Dreyfuss Max	Brownsville
Dwyer John T	San Antonio
Dunnington William E	Wichita Falls
Eberspächer George	College Station
Evans George A	Calvert
Evans Andrew D	Calvert
Ferguson Alex. M	Salado
Foster John E	Houston
Foster Walter	Walnut Springs
Fowlkes Jack S., Jr	Bryan
Fromme Frank J	Cibolo
Goodwin Joseph N	Bryan
Graham Walter N	Dallas
Griesenbeck Baldwin	San Antonio
Goree Langston J	Navasota
Gunn Joel E	Paris
Hamblen Edward S.	Houston
Harris John	Hubbard City
Harkness Robert E	Pearsall
Hauschild Otto H.	Victoria
Heath Benj. W.	Monroe, N. C.
Hemphill Stephen R	Marlin
Henne Louis	New Braunfels
Hoffman Benno A	New Braunfels
Houston Frank N.	Holland
Huffmaster Gordon	Kauffman
Howell Walter D	McKinney
Illig Carl	Houston
Jahn Felix C.	Gonzales
Jonas Edward C	San Antonio
Jordan Harry P	Beaumont
Kell Eugene	Brownsville
Kone James S	Denison
Lawrence Robert S	Cameron
Landrum John B.	Marlin
Leach Elmer	Fort Worth
Lewis Frank	Forney
Little George H	Columbus
Lovelady James H.	Jackson
Lowday George S	San Antonio
Lytle George N	Lytle
Maas William	Fort Worth
Mayfield John P	Runge
Maynard Morris S	Columbia
Mayer Henry C	San Antonio
Martin James D	Colorado City

NAMES.	POSTOFFICE.
Minter James G	Liberty
McClendon John N	Centralia
McCutcheon William M	Sweet Home
Montgomery Robert R	Galveston
Morris Henry L	Jacksonville
Murray Hugh C	Dallas
Muntich John J	Austin
Munson George E	Oyster Creek
Newman William F	Columbus
Nicholson George Y	Marlin
Orr William P	Wellborn
Powell Joe C	Hubbard City
Rentfro Robert B., Jr	Brownsville
Ragsdale John G	Tunis
Ross James G	Cold Springs
Ross Frank R	College Station
Rogers Jefferson C	Cameron
Rosenfield John S	San Antonio
Rutledge John L	Runge
Saigling Charles E	Plano
Sansom Frank M	Point Blanc
Sansom Otis W	Point Blanc
Sarvis Benj. S	Palestine
Schneider Wm J	Converse
Seftenberg Henry	Columbus
Simon Henry W	Van Raub
Sippel Henry E	New Braunfels
Smith James B	Gonzales
Smither Robert	Huntsville
Staples Charles N	Houston
Stephenson Andrew P	Dallas
Stedman Guy W	Aransas Harbor
Stedman Edward D., Jr	Aransas Harbor
Steele Oscar	Navasota
Stuart John P	Foster
Terry William S	Jefferson
Throckmorton James W	McKinney
Tomlinson James E	Marlin
Walton William B	Beeville
Wayte George W	Uvalde
Ward Eugene P	Big Cane, La.
Weaver James A	Clarksville
Williams Frank	Waxahachie
Wilson Orval P	Weston
Wittig Robert E	San Antonio
Womack Leon	Centralia
Wortham William N	Patrick
Wood Egbert	Hicks

SPECIAL STUDENTS.

Burleson Robert D	Bastrop
Clarkson Edward D	Refugio
Cowen Fred N	Brownsville
Ghio Guida	Texarkana
Gray Rufus C	Brenham
Günther Theodore	Chicago
Harding John P	Howe
Knurren Robert M	Fort Worth
Puckett John M	Manor
Read William K	Texarkana
Ryus Leroy D	Graham
Tomlinson James E	Marlin

SUMMARY.

Post Graduate	5
First Class	17
Second Class	51
Third Class	105
Fourth Class	128
Special	12
Total	318

BATTALION ORGANIZATION.

B. C. MORSE, Second Lieutenant Twenty-third Infantry, Commandant of Cadets.

CO. A.

CO. B.

CO. C.

CO. D.

CAPTAINS.

C. R. Morrill¹, W. L. Nichols³, R. G. Littlejohn⁴, George McCormick².

Commissioned Staff { First Lieutenant and Adjutant,
W. H. LUCKETT¹,
First Lieutenant and Quartermaster,
H. L. WHITENER².

FIRST LIEUTENANTS.

C. B. Welhausen³, R. M. Middlebrook⁵, W. T. Ahrenbeck⁶, U. S. Pfeuffer⁴.

SECOND LIEUTENANTS.

H. Y. Field¹, W. T. Merriwether², W. R. Dashiell³, H. Henderson⁴,
D. Cushing⁵.

Non-Commissioned Staff { Sergeant Major,
A. E. ALEXANDER¹,
Quartermaster Sergeant,
FRANK ADAMS².
Sergeant and Private Secretary,
J. F. ELLIS, JR.

FIRST SERGEANTS.

E. Wright³, E. P. Jarmon⁴, W. B. Harkness⁵, E. H. Sauvignet⁶.

SERGEANTS.

E. J. Altgelt¹⁰, D. C. T. Schmidt¹¹, W. S. Beesley¹³, B. V. Ellis¹⁶,
F. L. Buford¹², H. C. Schuchmach- T. E. Moore¹⁴, R. E. Boykin¹⁸,
W. E. Giesecke¹⁵, er¹⁹, J. B. Girand²⁴, R. C. Merritt²⁰,
E. A. Cook¹⁷, D. E. Neathery²¹, W. B. Cottingham⁷, C. C. Bailey²²,
A. Brossman⁸, T. M. Kyle⁹,

CORPORALS.

B. C. Parsons¹, M. E. Guinn², A. M. Luckett³, C. E. Eichletz¹⁵,
J. A. Hill⁴, J. R. Eichletz⁶, W. P. Metcalf⁹, J. Weidel⁷,
W. M. Luckett¹⁰, J. R. Buchanan⁸, O. D. Hutchinson¹³, W. B. Carson¹²,
D. D. Henderson¹¹, E. C. Parsons¹⁷, C. Sausing¹⁸, J. W. Hawkins¹⁵,
W. J. Bryan¹⁴, R. F. Burgess¹⁹, R. W. Long²⁰, H. A. Pearson¹⁶.

BATTALION MUSICIAN.

F. N. Cowen.

“MARKERS.”

T. F. Howard, F. S. Schleicher, E. C. Jonas, C. E. Overraker.

The following Cadets, not now at the College, held rank in the battalion during the year as follows:

Second Lieutenant—J. A. Ortiz.

First Sergeant—T. S. Shirley.

Sergeants—W. W. Allen, M. Y. Doke, T. J. Bennett, J. L. Bellah.

Sergeant and Private Secretary—H. L. Johnson.

Corporals—T. B. Ross, T. W. Lake, R. M. Lynch, W. Moore, C. B. Douglas,
G. D. Jennings, J. Rochell.

Degrees and Honors

Conferred at Commencement, June, 1890.

DEGREE OF M. S.

Duncan Adriance, W. B. Philpott

DEGREE OF M. E.

F. E. Giesecke.

DEGREE OF C. E.

C. C. McCulloch.

DEGREE OF B. S. A.

W. D. Anderson, H. C. Flynt, S. H. Hopkins, J. A. Kyle, J. W. Ragsdale,
A. E. Wangemann.

DEGREE OF B. M. E.

U. Backus, R. Hanschke, Jr., C. L. Schmidt.

DEGREE OF B. S. H.

J. S. Radford.

DEGREE OF B. C. E.

W. F. Brittingham, Jr., S. J. Hernstadt, W. S. Rudasill, R. L. Van Zandt.

GENERAL HONOR MEN BY CLASSES 1889-90.

First Class—Hernstadt, Wangemann, Backus.

Second Class—Wellhausen, Whitener, Ahrenbeck.

Third Class—Adams F., Schmidt, Beesley.

Fourth Class—Parsons, Jennings, Ehrenwerth.

HONOR MEN IN DEPARTMENTS.

FIRST CLASS.

Mathematics—Hernstadt, Wangemann, Schmidt C.

English and History—Wangemann, Backus, Hernstadt.

Languages—Hernstadt, Brittingham, Van Zandt.

Mechanical Engineering—Backus, Schmidt C., Hanschke.

Agriculture—Wangemann, Ragsdale, Kyle J. A.
 Experimental Agriculture—Ragsdale, Wangemann, Hopkins.
 Chemistry and Mineralogy—Hernstadt, Kyle, Wangemann.
 Horticulture and Botany—Radford.
 Veterinary Science—Ragsdale, Wangemann, Kyle J. A.
 Drawing—Hernstadt, Schmidt, Backus.
 Civil Engineering and Physics—Hernstadt, Rudasill, Van Zandt.
 Conduct—Anderson, Brittingham, Backus, Hernstadt, Hopkins, Kyle, Ragsdale J., Rudasill, Radford, Schmidt.

SECOND CLASS.

Mathematics—Whitener, Wellhausen, Ahrenbeck.
 English and History—Pfeuffer, Gundlach, Field.
 Language—Pfeuffer, Dowden, Dashiell.
 Mechanical Engineering—Wellhausen, Nichols W., Doyle.
 Agriculture—Whitener, Wilkins, Field.
 Chemistry and Mineralogy—Pfeuffer, Whitener, Ahrenbeck.
 Horticulture and Botany—Luckett W. H., Whitener, Field.
 Veterinary Science—Luckett W. H., Whitener, Wilkins.
 Drawing—Ahrenbeck, Wellhausen, Luckett W. H.
 Civil Engineering and Physics—Collett, Ahrenbeck, Morrill, Wellhausen.
 Military Science and Tactics—Field, Nichols W., Morrill.
 Conduct—Ahrenbeck, Doyle, Dowden, Douglass, Littlejohn, Luckett W. H., Middlebrook, Morrill, McCormick, Ortiz, Pfeuffer, Prokisch, Sauvignet, Whitener, Wellhausen, Whealan, Wilkins.

THIRD CLASS.

Mathematics—Schmidt D., Beesly, Adams F.
 English and History—Schmidt D., Watkins, Adams F.
 Mechanical Engineering—Schmidt D., Cottingham, Buford.
 Agriculture—Adams F., Merritt, Alexander A.
 Horticulture and Botany—Adams F., Alexander A., Merritt.
 Veterinary Science—Alexander A., Adams, Merritt.
 Drawing—Schmidt, Beesly, Kyle T.
 Civil Engineering and Physics—Adams F., Schmidt D., Bellah.
 Conduct—Altgelt, Adams, Allen, Brossmann, Beyer, Brown, Barton, Boykin, Bailey, Buhler, Beesley, Bellah, Cottingham, Doke, Duff, Duncan, Ellis B. V., Ellis J. T., Fountain, Grupe, Girard, Giesecke, Jarmon, Johnson, Kyle, Mallick, Moss, Massengale, Merritt, Moore T. E., Mounts, Morgan, Neathery D. E., Orgain, Peery, Rothe F., Roberts, Ratchford W. P., Ragsdale C. A., Slaughter, Shirley, Schuhmacher, Seale, Watkins.

FOURTH CLASS.

Mathematics—Ross, Weidel, Metcalfe.
 English and History—Saathoff, Weidel, Guinn.
 Mechanical Engineering—Moon, Fowler M., Burleson L., Fontler N.
 Agriculture—Parsons, Jennings, Guinn.
 Horticulture and Botany—Simons V., Parsons, Jennings.

Veterinary Science—Parsons, Jennings, Gentzen.

Drawing—Weidel, Eichlitz C., Rothe H.

Conduct—Anderson, Burt, Buchanan, Crenshaw, Douglass C., Dennis, Dirr, Eichlitz J., Ehrenwerth, Gentzen, Hill, Jennings, Luckett A., Lynch, Melton, McClanahan, Moseley, Parsons B. C., Rothe H. C., Rhome, Rainey, Rawley, Ross, Rochelle, Saathoff, Stone G., Smith J. W., Jr., Sielski, Wade, Weidel, Watson T., Yearout, Zadeck.

SPECIAL STUDENTS.

Conduct—Faubion, Puckett, Read, Russell, Wilkins J. O.

Commencement Exercises.

June 8, 9 and 10, 1890.

PROGRAMME.

Sunday, June 8th.

11 a. m. Commencement Sermon, by Rev. H. M. DuBose, Los Angeles, Cal.

Monday, June 9th.

9 to 11 a. m. Inspection of Departments, including Exhibition of Stock, Apparatus and Appliances for Instruction, Display of Products of Students' Work. Students at Work according to Regular Schedule.

11 a. m. Annual Reunion of the Alumni.

3 p. m. Business Meeting of the Alumni.

5:30 p. m. Infantry Drill, preceded by a Review of the Battalion by the Governor of the State.

8 p. m. Joint Celebration of Societies.

Tuesday, June 10th—Commencement Day.

8 to 9 a. m. Target Practice by Members of the Graduation Class.

10 a. m. Prayer by Rev. H. M. DuBose.

Reading of Technical Thesis by Student most Distinguished in each of the Courses of Study.

Objects and Present Policy.

The act of Congress which established the State Agricultural and Mechanical Colleges defines their objects, but under the act there have been founded as many different schools as there are States. These institutions have presented a variety of educational schemes; which have embraced nearly all gradations, from the classical and mathematical college to the manual labor industrial school. In view of this fact, it is proper to state as definitely as possible the interpretation given to the act of Congress by the authorities of this college, and the manner in which they are endeavoring to carry out its provisions.

The general object of this College is to excite and foster in the minds of our people an enthusiastic appreciation of the attractiveness and value of those pursuits by which the material development of the country is advanced.

It proposes to equip boys for their future career by the fullest development of their powers with reference to the wants of life, and acquaint them thoroughly, both theoretically and practically, with the duty, the dignity, and the nobility of labor. There is a great field opening in our State for practical technical employment and a growing demand for the services of those fitted for labor in every branch of scientific knowledge, and we are now compelled to draw upon the skilled labor of other countries to fill the most lucrative, honorable, and important positions in every industrial enterprise. In face of this fact, there can be no exaggeration of the value of an institution which will afford the direct advantage of conducting the student from the simplest mechanical principles to the complex order of artistic ingenuity by enabling him to combine principles, construct models, and call into activity his ingenuity for designing, while a practical knowledge of the use of tools can be acquired in one-half the time necessary under the ordinary methods of obtaining a trade

knowledge as an apprentice, kept at such work only as proves most profitable to the employer.

Agriculture in our country is the admitted basis of public wealth, and we must look to it as the chief source of our prosperity. The machinery of a prosperous agriculture once put in motion brings in its train a vast number of other public enterprises, creating new demands for skilled employment, and the skillful hand gives dignity to these pursuits and places a higher estimate upon their value.

Instruction in agriculture and horticulture; how to plant, tend, harvest and store the products of farm and garden; how to care for all the various kinds of stock found on well regulated farms, will inculcate a taste for these pursuits, and induce the young men to seek employment in the country, to the development of a self-reliant manhood, instead of wasting their lives, as is frequently the case, in the over-crowded professional ranks in the cities, by being educated into a fitness for such employments only as require an abstract mental training, and ignoring altogether that which is practical. The young men of the State can acquire at this institution a knowledge that will prepare them to achieve the highest and best results in any station through the reliable factors of education, industry, and a proper moral instruction, by the application of plain moral precepts to every act of life. In addition to this, the military feature of the College is of transcendent importance, though probably not fully appreciated. The arguments in its favor are numerous; but far in advance of all others, and what is sufficiently important to at once decide the matter, is its conduciveness to health. The outdoor exercise, the erect position and expanding chest give the lungs the free play so essential after the cramped position necessary to the school room; the pleasurable excitement accompanying the drill, the strictness of attention required to secure precision and accuracy of movement in performing the evolutions, are highly conducive to bodily health, grace, and strength, and perform a very active part also in the inculcation of habits of promptness,

regularity and order, and aid materially in preserving a proper discipline.

It is the business of this college to turn the attention of our young men from the overcrowded "learned professions" to those occupations which have brought abundant wealth and power to other States, and which are beginning now to attract and well repay the services of trained young men in Texas.

These objects are sought to be obtained—

By a thorough course of instruction in mathematics and natural science, with continual application of principles to work in the shops, fields, gardens, vineyards, orchards, pastures, dairies, and other laboratories.

By relying upon text books as little as possible and leading the students to seek information directly from observation and experiment.

By inculcating the dignity of intelligent labor—banishing the idea that the farmer or mechanic who is worthy of the name need be any less learned than the professional man.

By inducing in the mind of the student an enthusiastic love of nature and the study of natural laws, whereby agricultural and mechanical processes become invested with absorbing interest, and are pursued in a spirit which leads to progress and success.

It will thus be seen that the authorities of this school adhere to the interpretation of the act founding it which has been given by the author of this act, and which has been adopted by all the successful colleges of similar origin, namely: that this college is not a trade school, designed to take the place of the old apprenticeship system, but an institution where young men may receive broad and liberal training in all those sciences and arts which contribute to useful citizenship in the pursuit of all productive industries.

Methods and Scope of Instruction.

The courses of instruction cover all that is comprised in the curricula of the best institutions of our times, except the ancient languages. The time usually devoted to these is here given to the application of the principles in the fields, shops, and laboratories. Mere text book study is regarded as comparatively of little value unless supplemented by intelligent practice in applied science. This practice occupies from six to eight hours per week.

EXPERIMENTAL WORK.

This furnishes the chief means of training students in accordance with this view, and hence a most important subsidiary object of this institution is the discovery and dissemination of all sorts of information with regard to industrial pursuits.

The recent action of Congress in setting aside \$15,000 per annum for the establishment and maintenance of agricultural experimental stations in the several States will in a short time place at the disposal of the college the means for efficient experimental work, and offer to students the great advantages of observation and participation in researches which promise important results for the benefit of the whole country. The Agricultural Experimental Station has been established at the college as one of its departments, and students in the agricultural course will hereafter assist in the work of the Station.

MANUAL LABOR.

It is taken for granted that every farmer boy can learn at home such things as involve mere manual drudgery. It must therefore be understood that the student will not waste valuable time in labor which is not instructive.

The education here given to young men is not intended to make mere laborers of them in the ordinary sense of the word. A student who graduates here may begin life as a field hand; but

it is expected that, by virtue of his superior training, he shall be able speedily to find a promotion and easily fill the highest position of honor to which his ability may lead him.

MILITARY INSTRUCTION.

This is embraced by law in the objects of the college, and will be given such attention as is necessary for an honest compliance with the act of Congress.

MARKS AND EXAMINATIONS.

Records of the standing of each student are kept by the professors of the several departments. This standing is indicated by a system of marks based upon 100 as a maximum, with decimal gradations.

Examinations are held from time to time during the session as special subjects of study may be completed, and at the end of the session upon the general course. The results of these, combined with the daily recitation marks, determine the final standing of the student.

A monthly report is mailed to the parent or guardian of each student, showing his class standing, conduct and health.

GRADUATION.

A diploma of the College, together with the degree corresponding to the course of study pursued, will be conferred upon all students who complete either of the prescribed courses and pass satisfactory examinations on all the branches embraced therein.

Each candidate for graduation is required to submit to the professor in charge of the leading department of his course a graduation thesis; and he may be required to read this or some other essay approved by the Faculty on commencement day as a part of the public exercises.

To every student who completes satisfactorily any one of the optional studies—German, Spanish, Latin—a special diploma on that subject will be granted.

Each student receiving a diploma will be required to pay \$5.00 therefor.

HONORS.

The three students most distinguished for scholarship and deportment in each of the classes, as determined by marks and examinations, are known as honor men, and their names appear at the head of their several classes in the catalouge, though this rule may be modified if the number of students in any class, or their scholarship, shall not warrant such distinction.

A valedictorian is elected by the members of the graduating class from their own number.

A member of the second class is chosen by his classmates to reply to the valedictorian.

Military promotion is an honor attainable by general good conduct and manly behavior, as well as excellence in studies.

No academic honor will be conferred upon any student who may be deficient in conduct for the session.

Regular Courses of Study.

There are two regular courses of study and practice leading to degrees and extending through four years each. They are identical for the first year, thus giving the student the advantage of elementary training in subjects that are of equal importance to every one, and affording opportunity for intelligent choice between the courses as continued separately through the three succeeding years. In the third year, or second class, there is a still further specialization by which the student may, in the agricultural course, vary his studies with reference to obtaining either of two degrees, that is, Bachelor of Science (B. S.) or Bachelor of Scientific Agriculture (B. S. A.) In the mechanical course a similar specialization is provided for by which the

student is given choice between the degrees of Bachelor of Civil Engineering (B. C. E.) and Bachelor of Mechanical Engineering (B. M. E.).

All regular students must pursue either the agricultural or the mechanical course, and there is no course of instruction which is not industrial.

Students of the third class all take Latin. It is not studied in the first year, and is optional in third and fourth years. German and Spanish are also optional, except as shown in the curricula, and may be studied as subjects outside of the regular courses. There is no charge for any optional study.

In view of the great practical importance of the German and Spanish languages for business purposes in our State, special attention is given to these. A large number of students are of German descent and speak the language fluently. By association with these, young men may have continual practice in conversation out of the class room as well as in it.

In the curricula of studies the numeral indicates the number of hours per week devoted to the subject.

AGRICULTURAL COURSE.

FIRST YEAR—FOURTH CLASS.

Fall Term—Arithmetic (5); English Grammar, Composition, and Declamation (7); Domestic Animals (5). Practice: Carpentry Work (3); Free-hand Drawing and Penmanship (3); Infantry Drill (5).

Winter Term—Arithmetic and Algebra (5); English Grammar, Composition, and Declamation (7); Elementary Agriculture (2); Zoology (3); Practice: Carpentry Work (3); Free-hand Drawing and Penmanship (3).

Spring Term—Algebra (5); History of Texas, Composition, and Declamation (6); Botany (5). Practice: Carpentry Work (3); Free hand Drawing and Penmanship (1½); Field and Garden Work (1½); Infantry Drill (3).

SECOND YEAR—THIRD CLASS.

Fall Term—Algebra (5); Dairying (2); Fruit Culture (2); Advanced Grammar, Elements of Rhetoric, Composition, and Declamation (4); Elementary Physics (4). Practice: Horticulture (3); Free-hand Drawing ($1\frac{1}{2}$); Infantry Drill (5).

Winter Term—Algebra and Geometry (5); Selection of Dairy Stock (2); Fruit Culture (2); Advanced Grammar, Elements of Rhetoric, United States History, Composition, and Declamation (4); Elementary Physics (3). Practice. Creamery Work (3); Horticulture ($1\frac{1}{2}$); Free-hand Drawing ($1\frac{1}{2}$).

Spring Term—Geometry 5; Stock Breeding, Lectures (2); United States History, Composition, and Declamation (4); Vegetable Culture (2); Physiology (3); Systematic Botany (2). Practice: Creamery Work (3); Horticulture ($1\frac{1}{2}$); Free-hand Drawing ($1\frac{1}{2}$); Infantry Drill (3).

THIRD YEAR—SECOND CLASS.

For the Degree of Bachelor of Scientific Agriculture.

Fall Term—Geometry and Algebra (4); Inorganic Chemistry (4); Veterinary Medicine (2); Entomology (2); Feeding of Live Stock (3); Essentials of English and Essays (2). Practice: Creamery Work and Practical Feeding (3); Entomology (2); Analytical Chemistry (2); Infantry Drill (3).

Winter Term—Inorganic Chemistry (4); Veterinary Medicine (1); Tactics (2); Algebra (4); Feeding of Live Stock (2); Essentials of English, Outlines of General History (2); Bookkeeping (2). Practice: Cattle Feeding (2); Analytical Chemistry (5).

Spring Term—Trigonometry (4); Organic Chemistry (4); Veterinary Medicine (1); Feeding of Live Stock (2); Outlines of General History and Essays (2); Surveying (3); Bookkeeping (1). Practice: Field Experiments and Veterinary Science (2); Analytical Chemistry (5); Field Work in Surveying (); Mechanical Drawing (2); Infantry and Artillery Drill (3).

FOURTH YEAR—FIRST CLASS.

Fall Term—Analytical Geometry (3); Agricultural Chemistry (3); Geology (2), Farm Drainage (1); Forestry (2); English Literature and Essays (2); Veterinary Surgery and Anatomy and Materia Medica (3). Practice: Analytical Chemistry (4); Veterinary Practice (2); Agricultural Experiments (2); Forestry (2); Infantry Drill (3).

Winter Term—Analytical Geometry (2); Geology (2); Vegetable Anatomy and Physiology (2); Fertilizers (3); English Literature and Essays (2); Veterinary Surgery and Anatomy and Materia Medica (3); Business Law (2); Lectures on Military Science (1). Practice: Analytical Chemistry (2½); Dissecting (2½); Botany (4).

Spring Term—Farm Management (5); Lectures on English Literature (1); Veterinary Surgery and Anatomy and Obstetrics (3); Forage Plants (2); Injurious Insects (2); Civil Government (2). Practice: Analytical Chemistry (2½); Agricultural Practice (4); Microscopic work in Veterinary Laboratory (2½); Infantry Drill (3); Graduation Thesis.

THIRD YEAR—SECOND CLASS.

(For the Degree of Bachelor of Scientific Horticulture.)

Fall Term—Geometry and Algebra (4); Inorganic Chemistry (4); Entomology (2); Structural Botany (3); Essentials of English and Essays (2); German or Latin (2). Practice: Botany (2½); Analytical Chemistry (2); Infantry Drill (3); Entomology (2).

Winter Term—Algebra (4); Inorganic Chemistry (4); Vegetable Anatomy and Physiology (2); Essentials of English, Outlines of General History and Essays (2); German or Latin (2); Tactics (2); Bookkeeping (2). Practice: Botany (2½); Analytical Chemistry (5).

Spring Term—Trigonometry (4); Organic Chemistry (4); Vegetable Physiology (3); Outlines of General History and Essays (2); Surveying (3); German or Latin (2). Practice: Botany (2½); Analytical Chemistry (5); Mechanical Drawing (2); Infantry and Artillery Drill (3).

FOURTH YEAR—FIRST CLASS.

Fall Term—Agricultural Chemistry (3); Fungi and Plant Diseases (3); Dissertation (1); Forestry (2); Geology (2); English Literature and Essays (2); German or Latin (3). Practice: Analytical Chemistry (4); Botany (3); Forestry (2); Infantry Drill (3).

Winter Term—Elementary Mechanics (2); Landscape Gardening (1); Horticulture (2); Fertilizers (3); Geology (2); English Literature and Essays (2); German or Latin (3); Lectures on Military Science (1). Practice: Analytical Chemistry (2½); Horticulture (5).

Spring Term—Elementary Mechanics (3); Plant Variation and Breeding (2); Injurious Insects (2); Forage Plants (2); Lectures on English Literature (1); German or Latin (3); Civil Government (2). Practice: Analytical Chemistry (2½); Horticulture (5); Infantry and Artillery Drill (3); Graduation Thesis.

MECHANICAL COURSE.

FIRST YEAR—FOURTH CLASS.

Fall Term—Arithmetic (5); English Grammar, Composition, and Declamation (7); Domestic Animals (5). Practice: Carpentry Work (3); Free-hand Drawing and Penmanship (3); Infantry Drill (5).

Winter Term—Arithmetic and Algebra (5); English Grammar, Composition and Declamation (7); Elementary Agriculture (2); Zoology (3). Practice: Carpentry Work (3); Free-hand Drawing and Penmanship (3).

Spring Term—Algebra (5); History of Texas, Composition, and Declamation (6); Botany (5); Elementary Agriculture (1). Practice: Carpentry Work (3); Field and Garden Work (1½); Free-hand Drawing and Penmanship (1½); Infantry Drill (3).

SECOND YEAR—THIRD CLASS.

Fall Term—Algebra (5); Mechanism (5); Advanced Grammar, Elements of Rhetoric, Composition, and Declamation (4); Ele-

mentary Physics (4). Practice: Wood-turning, Blacksmithing, Piping, Bench Work in Iron (3); Mechanical Drawing (2); Free-hand Drawing (1); Infantry Drill (5).

Winter Term—Algebra and Geometry (5); Mechanism (4); Advanced Grammar, Elements of Rhetoric, Composition, and Declamation (4); Elementary Physics (3). Practice: Wood-turning, Blacksmithing, Piping, Bench Work in Iron (3); Mechanical Drawing (3).

Spring Term—Geometry (5); Steam Engine (5); United States History, Composition, and Declamation (4); Electricity and Magnetism (3). Practice: Wood-turning, Blacksmithing, Piping, Bench Work in Iron (3); Mechanical Drawing (3); Infantry Drill (3).

THIRD YEAR—SECOND CLASS.

(For the Degree of Bachelor of Mechanical Engineering.)

Fall Term—Descriptive Geometry (3); Geometry and Algebra (4); Inorganic Chemistry (4); Steam Engine (2); Essentials of English and Essays (2); Heat (2). Practice: Machine Work in Iron, Higher Work in Blacksmithing (5); Mechanical Drawing (2); Infantry Drill (3).

Winter Term—Descriptive Geometry (2); Algebra (4); Inorganic Chemistry (4); Steam Engine (4); Outlines of General History and Essays (2); Tactics (2). Practice: Machine Work in Iron, and Higher Work in Blacksmithing (5); Drawing (2).

Spring Term—Trigonometry (4); Water and Water Power (3); Organic Chemistry (4); Outlines of General History and Essays (2); Surveying (3). Practice: Machine Work in Iron and Higher Work in Blacksmithing (5); Drawing (4); Field Practice in Surveying (-); Infantry and Artillery Drill (3).

FOURTH YEAR—FIRST CLASS.

Fall Term—Analytical Geometry, Mechanics (5); Valve Motion and Link Work (5); Geology (2); Metallurgy (2); English Literature and Essays (2). Practice: Experimental Work with

Steam Engines and Higher Machine Work (4); Metallurgy (2); Mechanical Drawing (4); Infantry Drill (3).

Winter Term—Analytical Geometry and Calculus (3); Elementary Mechanics (2); Indicator Work and Experiments (5); Geology (2); Metallurgy (2); English Literature and Essays (2); Lectures on Military Science (1.) Practice: Experimental Work with Steam Engine, Testing Machine (4); Metallurgy (2); Mechanical Drawing (4).

Spring Term—Calculus (5); Experimental Work with Steam Engine, Lectures (5); Metallurgy (3); Civil Government (2); Lectures on English Literature (1.) Practice: Experimental Work with Steam Engines and Higher Machine Work (5); Metallurgy (2); Mechanical Drawing (2½); Infantry Drill (3). Graduation Thesis.

THIRD YEAR—SECOND CLASS

(For the Degree of Bachelor of Civil Engineering.)

Fall Term—Descriptive Geometry (3); Geometry and Algebra (4); Inorganic Chemistry (4); Road Making and Maintenance (2); Essentials of English and Essays (2); German or Spanish (2). Practice: Machine Work in Iron and Higher Work in Blacksmithing (5); Drawing (2); Infantry Drill (3).

Winter Term—Descriptive Geometry (2); Algebra (4); Inorganic Chemistry (4); Graphic Statics (2); Outlines of General History and Essays (2); German or Spanish (2); Tactics (2). Practice: Machine Work in Iron and Higher Work in Blacksmithing (5); Drawing (2).

Spring Term—Trigonometry (4); Organic Chemistry (4); Outlines of General History (2); Plain and Topographic Surveying (5); German or Spanish (2). Practice: Machine Work in Iron, Higher Work in Blacksmithing and Field Work in Surveying (5); Mechanical Drawing (4); Infantry and Artillery Drill (3).

FOURTH YEAR—FIRST CLASS.

Fall Term—Analytical Geometry, Mechanics (5); Railroad Engineering, Use of Solar Compass and Plane Table (5); Geology

(2); German or Spanish (3); English Literature and Essays (2).
Practice: Field Work (5); Mechanical Drawing (5); Infantry Drill (3).

Winter Term—Analytical Geometry and Calculus (3); Elementary Mechanics (2); Mechanics of Material, Stresses in Roofs and Bridges (5); Geology (2); German or Spanish (3); English Literature and Essays (2); Lectures on Military Science (2).
Practice: Field Work and Use of Testing Machine (4); Mechanical Drawing (5).

Spring Term—Calculus (5); Roofs and Bridges by Analytical and Graphical Methods, Designing (5); Civil Government (2); German or Spanish (3); Lectures on English Literature (1).
Practice: Work with Testing Machine, Designing and Field Work (5); Mechanical Drawing (5); Infantry and Artillery Drill (3). Graduation Thesis.

Text Books.

FOURTH CLASS.

Arithmetic, *Robinson*; Algebra, *Davies*; First Lessons in Agriculture, *Gulley*; Horses, Cattle, Sheep and Swine, *Curtis*; *Gray's* School and Field Book of Botany; Elementary Grammar, *Patterson*; History of Texas; Composition, *Quackenbos*; Zoology, *Packard*.

THIRD CLASS.

Algebra, *Schuyler* and *Wills*; Geometry, *Wentworth*; Practical Butter Book, *Willard*; Milch Cows, *Guenon*; Stock Breeding, Lectures; Fruit Culture, Lectures; Fruit Garden, *Barry*; *Gray's* Manual; Truck Gardening South, *Oemler*; Advanced Grammar, *Patterson*; United States History, *Barnes*; Physiology, *Smith's Comparative*; Physics, *Peck's Ganot*; Mechanism and Machinery of Transmission, *Fairbairn*; Steam Engine, *Goodeve*; Collar and *Daniell's* Latin Book.

SECOND CLASS.

Geometry, *Wentworth*; Trigonometry, *Wills*; Algebra, *Schuyler*, *Wills*; Inorganic and Organic Chemistry, *Remsen*; Blowpipe Analysis, *Nason*; Chemical Arithmetic, *Coit*; Steam Engine, *Goodeve*; *Lockwood's* Lessons; General History, *Myer*; Contracts and Specifications, *Haupt*; Surveying, *Schuyler*; Electricity, *Deschanel*; Cæsar; German Reader, *Buchheim*; German Grammar, *Sheldon*; Spanish Reader, *Tolon*; *Knapp's* Reader; Spanish Grammar, *Schele de Vere*; *Ybarra's* Method; Descriptive Geometry, *Church*; *Beasea's* Essentials of Botany; *Gray's* Structural Botany; *Gray's* Physiological Botany; *Packard's* Entomology; Veterinary Medicine, *Williams*; Manual of Cattle Feeding, *Armsby*; Book-keeping, *Mussleman*; Infantry Tactics, *Upton*.

FIRST CLASS.

Analytical Geometry, *Peck*; Elementary Mechanics, *Wood*; Practical Calculus, *Peck*; Governmental Class Book, *Young*; English Literature, *Meiklejohn*; Slide Valve, *Halsey*; Geology, *Winchell*; Minerals, Mines, and Mining, *Osborn*; Stadia Surveying, *Winslow*; Field Engineer, *Shunk*; Bridges and Roofs, *Shreve*; New Spanish Reader, *Velasquez*; Spanish Grammar, *Schele de Vere*; German Prose, *Boisen*; German Grammar, *Scheldon*; Agricultural Chemistry, Lectures; Fungi and Plant Diseases, Lectures; Forestry, *Hough*; Plant Physiology, *Goodale*; Horticultural Economy and Industries, Lectures; Practical Florist, *Henderson*; Land Drainage, *Klippart*; Talks on Manures, *Harris*; Lectures on Farm Management; Business Law, *Parsons*; Astronomy, Lectures; Veterinary Surgery, *Williams*; Veterinary Anatomy, *Chauveau*; Materia Medica, *Bartholow*; Veterinary Obstetrics, *Fleming*; Horse-shoeing, *Fleming*; Military Science, Lectures; United States Army Regulations.

[NOTE.—As the text books are subject to change, students are advised not to purchase books before entering the College. The College keeps a supply of books and furnishes them at cost.]

Schedule of Recitations.

In order to show definitely the manner in which the time of students is employed, the following schedule of daily work is appended.

Studies falling in the same hour are in different courses. Instructive work in the shops, fields, garden, laboratories, or creamery is in this schedule designated as "practice." The larger classes are, as necessity may arise, divided into sections which may recite or work in the several departments at the same time under different instructors.

FALL SCHEDULE, 1891.

FIRST CLASS.

HOURS.	P.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8:50-9:40	2	Mathematics	Mathematics	Mathematics	Mathematics	Mathematics
9:40-10:30	3	Chemistry	Chemistry	Geology	Geology	Chemistry
10:30-11:20	4	German	German	Spanish	Latin	German
11:20-12:10	5	Spanish	Business Law	Mechanical Engineer'g.	Business Law	Spanish
12:10-1:00	6	Mechanical Engineer'g.	Mechanical Engineer'g.	Mechanical Engineer'g.	Mechanical Engineer'g.	Mechanical Engineer'g.
		Civil Engineer'g.	Civil Engineer'g.	Civil Engineer'g.	Civil Engineer'g.	Civil Engineer'g.
		Forestry	Agriculture	Forestry	Agriculture	Veterinary Science
		Veterinary Science		Veterinary Science		
		Metallurgy	English	Metallurgy	English	
2:00-4:00	6	M. E. Drawing	M. E. Practice	M. E. Drawing	M. E. Practice	Metallurgy
2:00-4:30		C. E. Drawing	C. E. Practice	C. E. Drawing	C. E. Practice	
3:00-5:00		Chemistry Practice	Botany Practice	Chemistry Practice	Botany Practice	
		Drill	Agriculture Practice	Drill	Veterinary Practice	Drill Practice

SECOND CLASS.

HOURS.	P.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8:00-9:40	2	Agriculture Practice	Agriculture Practice	Agriculture Practice	Agriculture Practice	Agriculture Practice
8:50-1:40	3	Spanish	Spanish	Des. Geometry	Mathematics	Spanish
9:40-10:30	4	Mathematics	Heat and Electricity	Heat and Electricity	English—1	Mathematics
10:30-11:20	5	Des. Geometry	Chemistry—2	Chemistry—2	Chemistry—1	English—1
11:20-12:10	6	Veterinary Science	Chemistry—1	Chemistry—1	Chemistry—2	Chemistry—2
12:10-1:00	6	Cattle Feeding	English—2	English—2	Chemistry—1	Chemistry—1
2:00-3:00		Graphics	Cattle Feeding	Cattle Feeding	Entomology	Entomology
2:00-4:30		Latin	Latin	German	Mechanical Engineer'g.	Mechanical Engineer'g.
2:00-4:30		Botany Practice	Botany Practice	Shop Practice—1	Latin	German
3:00-5:00		Shop Practice—2	Chemistry Practice	Shop Practice—2	Shop Practice—2	M. E. Drawing
4:00-6:00		Agriculture Practice	Agriculture Practice	Agriculture Practice	Agriculture Practice	Agriculture Practice
		Drill	Drill	Drill	Drill	Drill

FALL SCHEDULE, 1891.

THIRD CLASS.

HOURS.	P.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8:05-9:40	.....	Shop Practice.—A..... Horticulture Practice.—C.....	Shop Practice.—B..... Drawing.—A..... Horticulture.....	Free Hand Drawing..... Physics.—B..... Mechanism.—A.....	Shop Practice.—A..... Horticultural Practice.—C..... Drawing.—B..... Physics.—B..... Mechanism.—A.....	Shop Practice.—B..... Horticultural Practice.—D..... Drawing.—A..... Physics.—B..... Mechanism.—A.....
9:40-10:30	3	Horticulture.....	Mechanism.—A.....	Latin.—1..... English.—1..... Mechanism.—B.....	Latin.—1..... English.—1..... Physics.—A.....	English.—1..... Mechanism.—B..... Physics.—A.....
10:30-11:20	4	English.—1..... Physics.—A.....	Mechanism.—B..... Physiology..... Latin.—A.....	Latin.—B..... Mathematics.—1, 2, 3..... English.—2.....	Latin.—B..... Mathematics.—1, 2, 3..... English.—2.....	Mathematics.—1, 2, 3..... English.—2..... Mathematics.—4.....
11:20-12:10	5	Mathematics.—1, 2, 3.....	Mathematics.—1, 2, 3.....	Mathematics.—4..... Physics.—1..... English.—3.....	Mathematics.—1..... Dairy.—1..... Drill.....	Mathematics.—1, 2, 3..... English.—3..... Physics.—1..... Drill.....
12:10-1:00	6	English.—2.....	Mathematics.—4.....	Mathematics.—4.....	Mathematics.—4.....	Mathematics.—4.....
2:00-3:00	.....	Mathematics.—4.....	Mathematics.—4.....	Mathematics.—4.....	Mathematics.—4.....	Mathematics.—4.....
3:00-4:00	.....	Physics.—1.....	Dairy.—1.....	Physics.—1.....	Dairy.—1.....	Physics.—1.....
5:00	.....	English.—3..... Drill.....	English.—3..... Drill.....	English.—3..... Drill.....	English.—3..... Drill.....	English.—3..... Drill.....

FOURTH CLASS.

HOURS.	P.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
8:50-9:40	2	Math.—1 and Zoology.—3, 4.....	Mathematics.—1.....	Mathematics.—1.....	Mathematics.—1.....	Mathematics.—1.....
9:40-10:30	3	Mathematics.—3.....	Mathematics.—3.....	Mathematics.—3.....	Mathematics.—3.....	Mathematics.—3.....
10:30-11:20	4	English.—2 and 4..... Mathematics.—4..... English.—3.....	English.—2 and 4..... Mathematics.—4..... English.—3.....	English.—2 and 4..... Mathematics.—4..... English.—3.....	English.—2 and 4..... Mathematics.—4..... English.—3.....	English.—2 and 4..... Mathematics.—4..... English.—3.....
11:20-1:00	5&6	Zoology.—1 and 2..... Shop Practice.—1 and 2.....	Domestic An.—1 and 2..... Shop Practice.—3 and 4.....	Domestic An.—1 and 2..... Shop Practice.—1 and 2.....	Domestic An.—1 and 2..... Shop Practice.—3 and 4.....	Domestic An.—1 and 2..... Shop Practice.—3 and 4.....
3:00-4:00	.....	Drawing.—3 and 4..... Mathematics.—2.....	Drawing.—1 and 2..... Domestic An.—3 and 4.....	Drawing.—3 and 4..... Domestic An.—3 and 4.....	Drawing.—1 and 2..... Domestic An.—3 and 4.....	Drawing.—1 and 2..... Domestic An.—3 and 4.....
.....	.....	English.—1.....	Mathematics.—2.....	Mathematics.—2.....	Mathematics.—2.....	Mathematics.—2.....
.....	.....	English.—1.....	English.—1.....	English.—1.....	English.—1.....	English.—1.....
.....	.....	Spanish.....	Spanish.....	Spanish.....	German.....	German.....
.....	.....	Drill.....	Drill.....	Drill.....	Drill.....	Drill.....

Post-Graduate.

The Post-Graduate Degree of M. S. (Master of Science) will be given to those who have pursued the Post-Graduate studies for two years, and have passed satisfactory examinations thereon and submitted an approved thesis.

It is required for admission to study for this degree that the candidate be a graduate in one of the courses, or pass satisfactory examinations upon subjects embraced in them.

Students for this degree are under the general regulations of the College, but are not subjected to military discipline; they may, however, be required to assist in keeping order in the barracks.

A student desiring to enter for this degree must select his course of study from the following prescribed subjects. This selection must be submitted to and approved by the Faculty, and no change can be made without approval of Faculty.

The Faculty will require a sufficient number of subjects to give the students full employment.

AGRICULTURE.

Farm economy, drainage and irrigation; studies in selection and cross-breeding to improve farm crops and forage plants; practical work in the management of farm and stock; original investigation by the student in any branch of agriculture.

MECHANICAL ENGINEERING.

Continuation of fourth year's work, and Steam Engine (by Rankine) begun in first year. Experimental work in the machine shop; Steam Engine (by Rankine) completed; special subjects and original designing in second year. Practice same as in fourth year.

HORTICULTURE.

Propagation and improvement of cultivated plants; fertilization and cross-fertilization; forestry; pomology; management of

glass houses; entomology continued, including anatomy of types; laboratory work on classification; special study of insecticides and management of an apiary; experimental work throughout the two years in hybridizing, nursery work and management, and commercial gardening; assisting in other experimental work.

BOTANY AND ZOOLOGY.

Grasses continued, reading, laboratory work and field experiments; mycology, thesis on special work, and original research with the microscope; microscopic work in plant history, including micro-chemistry and mounting; development of mosses and ferns; drawings and readings; collections of one hundred plant specimens; vertebrate and invertebrate zoology; reading and microscopic work; animals and plants under domestication; economic botany.

EXPERIMENTAL AGRICULTURE.

Review of Laws and Gilbert's work at Rothamstead; review of French and German experiments; review of experimental work in the United States; practice in experimental feeding; practice in field work.

CIVIL ENGINEERING.

Strains in frame structures; arches; abutments and retaining walls; theory of the strength of materials and the calculation of the sizes of tie-roads, beams and columns; water supply and pumping machinery; designing and drawing; architectural drawing.

PHYSICS.

Sound, light, heat and electricity, and work in the laboratory.

MATHEMATICS.

Advanced Analytical Geometry; Differential and Integral Calculus; Analytical Mechanics; Differential Equations.

CHEMISTRY.

Qualitative analysis, toxicology and technology; theoretical and organic chemistry; agricultural chemistry; standard reference and text books; current chemical literature. Final thesis on original work.

GEOLOGY AND MINERALOGY.

Volumetric analysis, assaying, metallurgy; examination of slags and fluxes and furnace products; instruction and practical work in economic geology; prospecting; examination and separation of ores.

The work in this department will be largely practical, but standard books and current literature will be constantly used.

MODERN LANGUAGES.

The course in this department will embrace such studies and exercises as will lead to a thorough and practical knowledge of either German or Spanish.

ENGLISH.

Advanced studies in English.

VETERINARY SCIENCE.

Comparative anatomy and physiology; embryology, histology; embedding by paraffine and celloiden processes; positive and negative staining; photomicography.

DRAWING.

Descriptive Geometry, Shades and Shadows, *Church*.

Such advanced work in drawing as may be needed by the student for his special course.

Information Concerning Admission.

REQUISITES OF ADMISSION.

To enter the College an applicant must have attained his fifteenth year, or otherwise must have attained a degree of physical and mental advancement corresponding to that age. He must be free from contagious or infectious disease or any deformity that would unfit him for the performance of his duties as a student of this College. He may be required to furnish evidence that he has not been dismissed from another institution of learning and that his moral character is good.

The mental attainments necessary for entering upon the courses of study comprise a fair knowledge of arithmetic as far as proportion, of descriptive geography, and of elementary English grammar and composition.

The reputation of this College for good discipline has caused parents in some instances to apply for admission for boys that had proved unmanageable and thoroughly vicious at other institutions. It is desired that such applications be not in the future presented.

The proper time—that is, the BEST time—for entering the classes is at the beginning of the scholastic year. Students are admitted, however, at any other time in the year, but if not fully prepared in the previous work of the class, they are then obliged to make up their deficiencies by *extra efforts* during the term.

MATRICULATION.

Upon arrival at the College young men intending to enter will report as soon as possible to the President of the College. From him they will go to the several professors for enrollment in classes, and to the Commandant for assignment to company and quarters.

Upon entering the College every student will be required to state upon honor that he has no firearms or other deadly weapons in his possession, or if he has such to deposit them with the President.

As there is no hotel at the station, new students or other strangers would be saved much embarrassment by arriving on a day train.

Persons stopping in Bryan can readily obtain conveyance by carriage to the College, and there is a telephone by which messages can be sent.

Prepaid telegraphic dispatches are forwarded to the College by telephone.

EXPENSES FOR SESSION OF NINE MONTHS.

Trust fund.	\$ 5 00
Incidental fee.	10 00
Physician's fee.	5 00
Maintenance, Fall Term.	50 00
Maintenance, Winter Term.	35 00
Maintenance, Spring Term.	40 00
Total	\$145 00

The trust fund is to pay for property damaged or destroyed, and will be refunded if there is no charge of this kind against the student.

Incidental and physician's fees are payable on entrance, whether at the beginning of or during the session, and can not be refunded.

Maintenance includes board, fuel, washing, lights, room rent, bedsteads, mattresses, pillows, tables, washstands, chairs, wardrobes, buckets, basins, and slop cans, all of which the College furnishes.

Each student is required to bring with him and keep on hand a sufficient supply of bed clothing, towels, etc., and underclothing sufficient for one year's wear.

Students are required to take their meals at the Steward's Hall.

Payment for each term must be made in advance, but a student entering during a term will be charged maintenance for the remainder of that term only.

A student once entering for the term and having paid for that term or the balance of it, as required by the resolution of the Board of Directors, shall forfeit all claim to said payment in case of voluntary withdrawal from the College before the expiration of said term, except in case of sickness.

If on any account the prompt payment of the dues should be delayed, the President will mail to the parent or guardian of the student the following notice:

NOTICE TO PARENTS AND GUARDIANS.

“Your attention is respectfully directed to the following resolution, passed by the Board of Directors of the Agricultural and Mechanical College of Texas:

Resolved, That it shall be the duty of the Treasurer to notify parents and guardians ten days after the date upon which a term payment is due that if same is not paid within twenty days thereafter (thirty days from time the payment was due), the student so in arrears will be dismissed.

‘Payment due 18 Notice sent 18 .

‘Limit expires 18 .’

All communications in reference to accounts of students should be addressed to the President of the College.”

UNIFORMS, BOOKS AND STATIONERY.

A neat uniform of cadet gray cloth is furnished here, at a cost of about \$18.

These uniforms are made by contract, and students are required to purchase from the contract tailor in order that uniformity may be secured in the cut and quality of the clothing, and that parents may be protected from imposition by irresponsible persons. The contract suits are carefully inspected by the Commandant of Cadets, and thus the full value of money expended for them is secured.

Books and stationery may be obtained here. They cost from \$5 to \$20 per session, according to class.

BEGINNING OF THE SESSION.

The sixteenth annual session will open Wednesday, September 9, 1891, and will close on Tuesday, June 8, 1892.

Students should not arrive at the College earlier than Monday, September 7.

STUDENT LABOR.

The Board of Directors have provided for a limited number of details for work. Students holding these details can, by work, pay from one-fourth to one-third of the College expenses. Those desiring these details are requested to correspond with the President of the College.

Miscellaneous.

LOCATION.

The College is situated at College Station, in the county of Brazos, five miles south of Bryan and ninety-five miles northwest of Houston. The Houston and Texas Central Railroad runs through the grounds, daily trains stopping at the station, about 800 yards from the main building.

POSTOFFICE.

This is College Station, not Bryan. It is important that correspondents should observe this, since letters are often delayed by going to the latter place. College Station is a money-order office, and there is an express office at this place.

MAIN BUILDING.

The main building stands on the highest point of the grounds. It is four stories high, made of brick, with mansard roof and

towers. The rooms are all of high pitch and well ventilated. There are forty-five rooms in the building. On the fourth story nearly half the space is occupied by the large room assigned to the drawing department. Two society halls, the armory, the mechanical section room, and two small rooms are also on this floor. On the third floor are the section rooms of the departments of English, languages, and horticulture and botany, the library and reading room, and eight rooms occupied by officers of the College. On the second floor are the President's office, the business office, the bookstore, the chemical laboratory and section room, the museum, the agricultural section room, English section room, the office of the Director of the Agricultural Experiment Station, and the janitor's room. On the fourth floor are chemical private laboratory, furnace room, section room and instrument room of the department of civil engineering and physics, store room, dark room, mathematical section room, guard room, commandant's office, and section room and laboratory of the department of veterinary science. There are broad halls running through each story at right angles to each other, and two sets of stairways, one in the middle, the other at the end of the building.

SHOPS.

Back of the main building is the carpenter shop. It is of two stories, fitted with benches and wood working tools in separate sets for students. Power is supplied in this shop by a 12-horse power vertical engine. The boiler house and blacksmith shop are in the rear of the building. The metal working shop is near and to the right of the main building. Its machinery is driven by a 20-horse power engine. The building is of brick.

The blacksmith shop is furnished with six forges and necessary tools.

MESS HALL.

This is a three-story building, and is attached to the house which was formerly the President's residence. The first floor is

occupied by the hall, Steward's office, store rooms, kitchen, etc. The second and third floors are occupied by students' rooms, of which there are twenty in the building.

PFEUFFER HALL.

This new building, erected in 1887, is for a dormitory, and has capacity to accommodate seventy-five students. It is named in honor of Hon. George Pfeuffer, a former President of the Board of Directors.

AUSTIN HALL.

This is a new dormitory, erected in 1888, and has capacity to accommodate seventy-five students.

NEW DORMITORY.

Another and more commodious dormitory will be erected during the coming summer.

HOSPITAL.

A large and comfortable building has been erected as a hospital and surgeon's residence.

The surgeon will give his attention to all students without charge other than the regular medical fee of five dollars paid by each student upon entrance.

CREAMERY.

There has recently been erected a building for the creamery. It is supplied with a complete outfit of the latest improved apparatus for making butter. The machinery is driven by a six-horse power engine. Practice in creamery forms part of the agricultural course.

ASSEMBLY HALL.

This building has been completed and furnished with neat opera chairs. It is a two-story brick, stuccoed with Portland cement; has main floor and gallery. It is an ornament to the grounds.

FARM BUILDINGS.

These are situated several hundred yards in the rear of the main building. They consist of two large barns, a milking shed, and a piggery. One of the barns is new and is fitted with stalls for the thoroughbred cattle, and the storage rooms for implements and food. These buildings are supplied with water from a large tank, which is kept filled by a wind mill.

There have recently been erected three large silos in connection with the Agricultural Experiment Station, and students will have the advantage of practical instruction in the construction of silos and the best method of preparing ensilage.

PERMANENT FUND.

In November, 1871, the legislature formally accepted from Congress the gift of one hundred and eighty thousand acres of public land for the endowment of an agricultural and mechanical college. This land was sold for \$174,000, which sum was invested in seven per cent State bonds. As under the act of Congress neither the principal nor interest of this money could be used for other purposes than the payment of officers' salaries, at the time of the opening of the college there was an addition to the fund from accumulated interest of \$35,000. This was invested in six per cent bonds of the State, thus furnishing an annual income of \$14,280.

LAND.

The county of Brazos donated to the college two thousand four hundred and sixteen acres of land lying on each side of the Houston & Texas Central Railroad, five miles from Bryan and ninety-five from Houston.

GROUNDS, FARM, AND STOCK.

The farm, garden, orchard, barnyards, and campus are included in the inclosures to the east of the station. The farm comprises

about two hundred acres. This is devoted solely to experimental culture and the production of forage for stock. The orchard of eighty acres contains a large variety of young fruit trees more or less adapted to this climate. The garden affords experimental work to students and furnishes an abundance of vegetables to the mess hall. A young vineyard has been started; many of the vines are already bearing well. Back of these are the piggery, calf lots, barns, and pastures of about four hundred acres.

The College now owns registered cattle, Dutch, Frisians, Galloways, and Jerseys, besides a number of high grade Short horns and common cows for the present milk supply. The swine include Essex and Berkshires. On the west side of the railroad two pastures of eight hundred acres each have been enclosed.

APPARATUS.

All departments of instruction are well supplied with implements and instruments of the latest and best forms. The agricultural department is equipped with hand tools, machinery, and mules for farm work. The machine shops are well furnished with wood and metal working machinery and tools. The chemical and physical laboratories have recently received important accessions of apparatus.

The department of civil engineering is supplied with a full set of surveying and engineering instruments.

MILITARY ORGANIZATION AND DISCIPLINE.

For the purpose of maintaining good order and discipline, as well as for the proper execution of the law of Congress requiring military instruction of the students, they are organized into a battalion of two or more companies. The battalion is under the immediate command of the Commandant. The officers, commissioned and non-commissioned, are students taken for the most part from the first and second classes. They are appointed by the President of the College upon the recom-

mendation of the Commandant, and their appointment and rank is made to depend upon the active and soldierly performance of their duties, their sense of duty and responsibility, and their general good conduct and class standing.

These officers, not merely at drill, but at all times when on duty, assist in keeping good order in and around the buildings. In their various positions of graduated responsibility they not only aid most efficiently in maintaining discipline, but continually practice and are trained in the exercises of the highest qualities involved in obedience and command.

GENERAL REGULATIONS.

It is understood that every student upon entering the College pledges himself to an honest effort to observe the regulations and sustain the authorities in the maintenance of discipline.

The strictest attention to study, and the most exact punctuality in attendance on recitations and other duties, will be made the condition of every student's continuance at the College; and any student who without authority absents himself from recitation or any other duty, deserts his class, or refuses to attend when warned, shall be dismissed, or less severely punished, at the discretion of the Faculty.

Students are forbidden to enter into combinations under any pretext whatever. One who shall begin, excite, cause, or join in any boisterous or riotous conduct, or become a party to any agreement to avoid or violate any regulation, to hold no intercourse with a comrade, or to do any act to the prejudice of good order and military discipline, shall be dismissed.

Students are prohibited, under the penalty of dismissal, from having in their possession ammunition, weapons, or arms not issued for the performance of military duty; nor shall these be retained loaded in quarters under any pretext.

A student who shall drink, or bring, or cause to be brought within the cadets' limits, or have in his room, or otherwise in

his possession, any fermented or intoxicating liquor, or fruits or viands preserved in intoxicating liquor, shall be dismissed or otherwise punished, at the discretion of the Faculty.

No student shall have in his possession or play at cards or games of chance, engage in a raffle, or in any manner wager money or other things, on penalty of dismissal.

Permission to attend private parties or places of public amusement will not be granted during the term.

No cadet can be granted a leave of absence during a term without an urgent necessity.

No student is allowed to leave the College during the session without permission of the President of the College, on application through the Commandant.

A student who shall cut, mark, or otherwise injure or deface the buildings, furniture, or appurtenances; the trees, shrubbery, green sward, grounds, fences, stables, or outhouses; or who shall lose, injure, destroy or improperly dispose of the arms, accoutrements or other property of the College, shall make good all damage, and be dismissed or otherwise punished according to the nature of the offense.

When the responsibility for the destruction of State property can not be fixed upon any one, the amount of the damage will be assessed against the occupants of a room or division of the entire body of students, as the case may require.

Students receive the admonition and counsel of the President before being subjected to any penalty, except in case of flagrant offenses. Those who are habitually neglectful of their duties, or who do not regularly attend their classes, will be required to withdraw from the College.

To each recorded delinquency a number of from one to ten, proportional to the degree of the offense in a moral and military view, is assigned to express demerit.

Any student receiving demerits as follows shall be declared deficient in conduct and subject to dismissal: In the first class, one hundred in a session or thirty-four in a term; in the second

class, one hundred and fifty in a session or fifty in a term ; in the third class, two hundred in a session or sixty-six in a term ; in the fourth class, two hundred and fifty in a session or eighty-four in a term.

TO PARENTS AND GUARDIANS.

The necessity for uninterrupted attention to their studies on the part of students can not be too strongly urged. It is impossible for a young man to become interested in his work here if he is permitted to leave the College whenever any special amusement is advertised in our neighboring towns and cities. It is therefore respectfully asked that those who send their sons or wards here do not, except in the most pressing emergencies, request permission for them to leave their studies for any purpose whatever.

Whenever the parent or guardian shall leave the application for special permits to the discretion of the son or ward, the College authorities will judge of the propriety of granting such permits.

HYGIENE.

The buildings of the College stand upon the crest of a "divide," from which there is sufficient slope to carry off all drainage.

The soil is sandy, and mud and water disappear within a few hours after rain. An extensive open prairie surrounds the College on all sides. There is a constant breeze—usually very strong. The water used by students is obtained from cisterns, supplied from high, clean roofs.

The rooms of the students are inspected at least twice a day, and are required to be kept neat and well ventilated.

Students have the use of bath rooms supplied with cistern water.

There is in the vicinity of the College apparently nothing to produce malarial sickness, and as a matter of fact there is very little of it here. All serious sickness has been in the form of pneumonia and measles, which do not depend on local causes.

The food served in the mess hall is admitted by all to be abundant, palatable, and wholesome. It is therefore very desirable that parents should refrain from sending boxes of delicacies to their sons. The practice of eating from these between meals is undoubtedly very injurious to the health of the young men, and the surgeon has traced more sickness and consequent loss of time to this one cause than to any other.

The drill, farm, and shop practice and athletic sports furnish abundant and wholesome exercise for the students.

RELIGIOUS AND MORAL CULTURE.

Every Sunday there will be service in the chapel, and all students must be present unless excused by special request of parents or guardians. The faculty will try by all means in their power to protect and develop good morals in those committed to their charge.

The situation of the College is peculiarly favorable for the preservation of the morals of the students. The nearest town is distant five miles, and it is almost impossible for any student to go to Bryan, even for a short time, without his absence becoming known to the authorities. All the temptations that beset young men in cities are entirely absent here. No student is ever permitted to visit Bryan at night except by request of his parent or guardian.

LITERARY SOCIETIES.

There are two literary societies in the College—the Austin and the Calliopean. They meet weekly in their respective halls for practice in debate, literary composition, and declamation. Public debates are held frequently during the session, and speakers are invited to deliver addresses.

LIBRARY AND READING ROOM.

A valuable library and reading room have been provided for the use of students, and additions will be annually made.

The library now comprises standard works of history, biography, agriculture, mechanics, engineering, mathematics, natural science, law, and political economy, mental and moral philosophy, poetry, general literature, and reference.

Gifts of books and magazines will be thankfully received. Back numbers of literary and scientific periodicals will be especially useful in completing files.

LIST OF PERIODICALS AND PAPERS IN THE READING ROOM.

The following papers have been contributed to the reading room by the publishers:

AGRICULTURAL.

Western Rural, Chicago, Ill.
 Farmer's Call, Quincy, Ill.
 Northwestern Agriculturist, Minneapolis, Minn.
 Live Stock Indicator, Kansas City.
 Our Grange Homes, Boston, Mass.
 Hoard's Dairyman, Fort Atkinson, Wis.
 Massachusetts Ploughman, Boston, Mass.
 Homestead, Des Moines, Iowa.
 Southern Live Stock Journal, Starkville, Miss.
 Sugar Bowl and Farm Journal, New Orleans.
 Kansas Farmer, Topeka, Kas.
 Dairy World, Chicago.
 Farmer's Review, Chicago.
 Prairie Farmer, Chicago.
 Texas Live Stock Journal, Fort Worth.
 National Stockman and Farmer, Pittsburgh.
 Texas Stockman and Farmer, San Antonio.
 Review and Farmer, Pueblo, Col.
 Western Farmer, Madison, Wis.
 Acker's Gartenban Zeitung, Milwaukee, Wis.
 Farm and Fireside, Springfield, Ohio.
 Farm, Field and Stockman, Chicago.
 Dairy Column, Chicago.
 Wisconsin Agriculturist, Racine, Wisconsin.
 Industrialist, Manhattan, Kas.
 Mirror and Farmer, Manchester, N. H.
 Farm Journal, Philadelphia.
 American Swineherd, Chicago.
 Jersey Bulletin, Indianapolis.
 Southern Planter, Richmond, Va.
 American Sheep Breeder, Chicago.
 Farm and Home, Springfield, Mass.

SUBSCRIBED FOR.

Pacific Rural, San Francisco.
Country Gentleman, Albany, N. Y.
Rural New Yorker, New York.
Horseman, Chicago.
Breeder's Gazette, Chicago.
American Agriculturist, New York.
Journal of Agriculture, Montreal, Canada.
Garden and Forest, New York.
American Garden, New York.
Popular Gardening, Buffalo, N. Y.
Southern Cultivator, Atlanta, Ga.
Dixie, Atlanta, Ga.
Agricultural Science, Lafayette, Ind.
Botanical Gazette, Crawfordsville, Ind.

MECHANICAL.

American Machinist, New York.
Age of Steel, St. Louis, Mo.
Architecture and Building, New York.
Iron Age, New York.

SCIENTIFIC.

American Meteorological Journal, Ann Arbor, Mich.
American Journal of Science, New Haven, Conn.
American Geologist, Minneapolis, Minn.
American Naturalist, Philadelphia.
Druggist's Circular, New York.
Electrical World, New York.
Engineering News, New York.
Engineering and Mining Journal, New York.
Journal of Comp. Medicine and Surgery, New York.
Journal of Society of Chemical Industry, London, England.
Nature, New York.
Popular Science Monthly, Boston, Mass.
Science, New York.
Scientific American and Supplement, New York,
School of Mines Quarterly, Columbia College, New York.
Veterinary Journal, London, England.
Railroad Gazette, New York.
Popular Science News, Boston, Mass.

RELIGIOUS.

Texas Baptist and Herald, Dallas, Texas.
Western Recorder, Louisville, Ky.

GENERAL NEWS.

Uvalde News, Uvalde, Texas.
Freie Presse Für Texas, San Antonio, Texas.

Abilene Reporter, Abilene, Texas.
 Dallas News (daily), Dallas, Texas.
 Houston Post (daily), Houston, Texas.
 New York World (weekly), New York.
 St. Louis Globe-Democrat (weekly), St. Louis.
 Atlanta Constitution (weekly), Atlanta, Ga.
 Picayune (weekly), New Orleans, La.
 Courier-Journal (weekly), Louisville, Ky.

ILLUSTRATED.

Puck, New York.
 Ueber Land und Meer, Berlin, Germany.

JUVENILE.

Youth's Companion, Boston, Mass.
 St. Nicholas.

LITERARY.

Forum, New York.
 North American Review, New York.
 The Century, New York.
 Scribner's Magazine, New York.
 Atlantic Monthly, Boston, Mass.
 Fortnightly Review, London, England.
 Contemporary Review, London, England.
 Nineteenth Century, London, England.

MUSEUM.

A room in the main building has been fitted up for a museum. The closets and show cases are well furnished with specimens of many varieties.

Minerals from all parts of the State will be received and their composition determined by chemical analysis.

Departments of Instruction.

DEPARTMENT OF ENGLISH AND HISTORY.

Professor, W. L. BRINGHURST, PH. D.

Assistant, W. B. PHILPOTT,

Instructor, REV. T. C. BITTLE.

The general aim of the instruction in this department is to make thorough, practical English scholars.

The following subjects are taught :

I. ENGLISH LANGUAGE AND LITERATURE.

Embracing the grammatical and rhetorical structure of the language, its history and development, synonyms, and comparative philology. That the student may thoroughly master the principles of his mother tongue, daily recitations are accompanied with practical exercises on the blackboard in writing, spelling, analyzing, and criticising. Constant practice in declamation and composition is required.

The historical development of English literature is carefully traced, and the student is made as familiar with the works of our great authors, in poetry, history, philosophy, fiction science, etc., as the time allotted will permit. Lectures are delivered to the classes, and original reviews, essays and compositions are required.

TEXT BOOKS—*Patterson's* Elements 'of Grammar, *Patterson's* Advanced Grammar and Rhetoric, *Lockwood's* Lessons, *Meiklejohn's* English Literature.

II. HISTORY.

The object of this course is to give the student a thorough knowledge of the history of his own country and of England, and an outline of the world's history, ancient and modern. Special attention is given to the history of the people, and the gradual development of civilization, power, laws, constitution,

and political system of our republic. The department is well supplied with wall maps, globes, etc.

TEXT BOOKS—*Barnes' History of the United States*, *Meyer's General History*, *Pennybacker's Texas*.

For reference and private reading the College library supplies an admirable collection of histories, dictionaries, biographies, and encyclopedias, besides works of poetry and general literature.

Candidates for admission into the fourth class are given an examination in the elementary branches of English grammar, orthography, etc.

DEPARTMENT OF LANGUAGES.

Professor, RUD. WIPPRECHT.

The study of ancient and modern languages in the Agricultural and Mechanical College is optional, except in the Third Class, which have Latin; but as there is always a certain number of young men who wish to add to their technical studies also a branch of liberal education, the Department of Languages was established for the purpose of supplying that want.

The study of foreign languages has in all ages been considered the chief factor in liberal education, and ever will be so, because all that we call thought finds its last consummation in language, so that the growth of the human mind must be studied in the history of language.

As there are laws which govern the bodily organization as well as the physical, there are also laws which rule the intellectual life, or the life of speech. Since the mother tongue is not acquired by study, but is picked up unconsciously and grows along with the body, we do not properly become any more acquainted with our intellectual life than we do with the physical; and as we are not able to see the features of our face in any other way than by means of a mirror, in a similar way our intellectual life can not be made accessible to our understanding except by the reflecting light of foreign language.

All our knowledge rests on the mental process of comparing ideas and drawing conclusions therefrom, which is the supreme endowment of the human mind; the study of foreign language consisting in an uninterrupted comparing of conceptions and ideas is therefore the most effective means toward a sound and thorough philosophical training of the mind. The English language as a compound chiefly of German and Latin elements, is on that account particularly well adapted for the courses of linguistic studies offered by the Agricultural and Mechanical College. Besides the intellectual gain derived from studying a foreign language, its practical advantages also should not be underrated, for quite a number of young men of our College have already attained good positions, owing to their knowledge of some of those languages.

The plan of instruction in the Language Department consists in offering the student a maximum of practice with a minimum of theory, on the principle that the thorough acquisition of the elements of the foreign language must be more of art than of science, more the work of observation, comparison and imitation than the mechanical following of rules, or the exercise of analysis and conscious inductive reasoning. Lectures will be delivered on all the important subjects connected with language.

The text books used are: For Latin—The Beginner's Latin Book, by *Collar & Daniell*; Gradatim, by *H. R. Heatley & Kingdom*; Cæsar. For German—Modern German Reader, by *C. A. Buchheim*, Oxford. For Spanish—Spanish Reader, by *T. Tolon*; Modern Spanish Readings, by *William Knapp*; Metodo Practico, por *Alejandro Ybarra*.

DEPARTMENT OF MECHANICAL ENGINEERING.

Professor, R. H. WHITLOCK, M. E.

Assistant, A. M. GÜNTHER.

This department is intended so to combine theory and practice that, after deriving a theoretical knowledge of a subject

from the text books of standard writers, the student may go into the shop and apply that knowledge in a thoroughly practical manner. With this theoretical preparation the mind grasps the salient points and avoids the difficulties of the more practical part of the work. The work is carried on by aid of practice in the shops and drawing room, and by text books and lectures.

First the machinery of transmission is taken up and discussed, and especial attention paid to shafting, belts, speed pulleys, gear wheels, and kindred subjects. These lead the way to the higher forms of mechanism, and later the steam engine in its general principles and various forms is studied and discussed.

As stated above, the work in the class room is supplemented in every possible way by showing the student the practical application of these principles in the machinery used at the College and neighboring places.

Before graduating from this department, each student must place in the hands of the professor in charge a thesis treating of some mechanical subject, which shall be declared satisfactory by him.

SHOPS AND SHOP WORK.

Superintendent, PROFESSOR R. H. WHITLOCK.

Foreman of Machine and Blacksmith Shops, A. M. GÜNTHER.

Foreman of Carpenter Shop, C. A. LEWIS.

The carpenter shop is situated in a two story frame building, 83x34 feet. Here each student has his own set of tools to care for, use, and keep in order. The machine shop is a one story brick building, 80x35 feet, and in connection with it is the blacksmith shop, 20x35 feet.

Here the student receives practical and systematic instruction, beginning with the simplest exercises and gradually working up to those of a more difficult character which involve greater skill. Each of these, when finished, must reach a certain standard of

perfection before the learner can pass on to the next, thus insuring a knowledge of the principles by which the work is accomplished. The wood-working department is subject to the same requirements, and here, as in iron working, the first exercises are of the simplest character, while the later ones demand increased skill on the part of the workman. All tools are furnished by the College, but the student should furnish a two-foot rule and a pair of overalls, both of which may be obtained in Bryan.

DEPARTMENT OF AGRICULTURE.

Professor, GEO. W. CURTIS, M. S. A.

Assistant, J. M. CARSON.

Foreman of Farm, J. H. ALSWORTH.

Stockman, J. B. WATTS.

The design of the course in agriculture is to furnish not only close, practical instruction in all branches of progressive farming and stockraising, but also a broad and liberal education, fitting the student for the higher demands of agricultural industry and the full responsibilities of educated citizenship. For a complete outline of studies pursued, see curricula on preceding pages; the more important branches are briefly noted below.

In the study of domestic animals, careful attention is given to the merits and demerits of different breeds, origin, description, and characteristics being discussed specifically for each breed, with general notes on care, management, etc., pertaining to all.

Dairying is given considerable prominence. The creamery building is thoroughly furnished and fitted with the latest improved machinery and apparatus for the practical instruction of students, who perform the entire work, so far as their time will allow, under the immediate supervision of the professor or his assistant.

The aim is to thoroughly fit our students for taking charge of and operating creameries, as well as managing dairy farms, in any portion of the State.

In stockbreeding the aim is to acquire familiarity with the principles of selection, feeding, etc., to change or perpetuate characters, and the laws governing the transmission of qualities. Especial attention is given to the breeding, selection and management of dairy stock.

The study of cattle feeding is pursued in the natural order of topics discussed, taking up first, the general laws of animal nutrition; second, the chemical composition of feeding stuffs; third, the feeding of farm animals. In this way a thorough knowledge is acquired of the principles and reasons upon which profitable cattle feeding is based, either upon the range or in the yard.

Practical work is required of each student in the feeding of animals for different purposes, and comparison of different fodders for the same purpose.

The senior class devote the year to the study of drainage and irrigation, fertilizers, and farm management. The latter includes comparison of the different branches of agriculture, rotative and successive cropping, management and economy of labor, selection and care of machinery, care of stock, planting and harvesting cotton, grain, and forage crops, and general suggestions as to profit and loss in farming.

Practice is given regularly from four to eight hours per week throughout the course.

The fourth class conduct field tests with different crops and fertilizers, and are trained in judging stock of the different breeds, good specimens of which are found at the College.

The third and second classes perform all work in connection with the creamery, as previously stated.

The first class practice consists in the conduct of field and feeding experiments, laboratory, microscopic, and such other work as will best fit them for agricultural pursuits.

In addition to the above regular practice all students are permitted and encouraged to work one or two afternoons each week or on regular detail work at other periods—at a maximum rate of ten cents per hour—at whatever work may be found to do. Stu-

dents avail themselves of this opportunity to defray a portion of legitimate College expenses without detriment to their studies.

The library is well supplied with standard works of reference on all branches, which students may consult at any time in addition to the regular text books used in the course.

The establishment of the Agricultural Experiment Station at the College under the supervision of the Professor of Agriculture, as director, makes it possible to give students the full benefit of all experiments conducted at the College as well as permitting a careful study of results of valuable tests conducted elsewhere, by frequent reference to bulletins from other stations, files of which are kept in the director's office.

DEPARTMENT OF CHEMISTRY AND MINERALOGY.

Professor, H. H. HARRINGTON.

Assistant, P. S. TILSON.

CHEMISTRY.

The subject of chemistry will be introduced by the study of inorganic chemistry, passing into a brief course of organic chemistry. The attention of the students will be directed to the historical development of the science, and to the phases of chemical theory as at present understood by chemists.

During this part of the course there will be constant practice in the use of symbols and chemical calculations. When possible, students will make illustrative experiments for themselves. Special attention will be given to technical processes and to the construction and working of apparatus for the manufacture of chemicals.

After the general principles of chemistry are understood, the study will be supplemented by practical work in the laboratory. This work will commence with the use of the blow-pipe, simple glass working and fitting up of apparatus, continuing into qualitative analysis, wet and dry, quantitative analysis, both gravimetric and volumetric.

Advanced students will be required to investigate special subjects in original work and present their results to the professor.

Agricultural students will spend their time mainly in agricultural analysis, consisting of examination of soils, fertilizers, manures, feed stuffs, marls, ashes, etc. Advanced mechanical students will be given subjects in manufacturing chemistry.

MINERALOGY AND METALLURGY.

The course in mineralogy will be made as thorough as time will allow. Work in this department will commence in the second class, during which time much attention will be given to the systematic examination of minerals. The study is continued in the first class in connection with geology and metallurgy, special attention being given to the economic aspect of geology and to the metallurgy of iron and copper. The manufacture of charcoal and collecting the by-products, together with the use of charcoal furnaces in smelting iron ore, will be thoroughly discussed. Assaying, as practiced in connection with mines and metallurgy, will be taught to the students of the B. M. E. course.

It is the object of the department of chemistry and mineralogy to make the course of study thorough and practical, and, as far as possible, to equip the students with information that will be at once available on leaving College.

MEANS OF ILLUSTRATION AND WORK.

The laboratory is well supplied with chemicals, minerals, glass, porcelain, and platinum ware, gas holders and generators, filter pumps, including Geissler's, Sprengle's, Johnson's, with assay furnaces, muffles, crucibles, etc.; combustion furnaces, arrangement for Kjeldahl's nitrogen determinations; Hempels' and Elliott's gas apparatus; a soliel-laurent saccharimeter, colorimeter, reflecting goniometer, Crouch's best binocular microscope, with fittings, etc. In short, the laboratory is well supplied with the latest improved apparatus needed in well established methods of analytical work and original investigation. Our bal-

ance room contains new and improved analytical balances of the finest quality.

Remsen's chemistries are used as text books in chemistry, and Winchell's and Nason's works as text books on geology and mineralogy. There is a small library of standard books of reference constantly accessible to students working in the laboratory. Hiorns and Bloxam will be used as text books in metallurgy.

DEPARTMENT OF MATHEMATICS.

Professor, CHARLES PURYEAR.

Adjunct Professor, ROBERT F. SMITH.

Instructor, Lieutenant B. C. MORSE.

Instruction in this department is given by the use of approved text-books, supplemented by oral explanations and lectures. The course is designed to be thorough rather than extensive. The student's knowledge of the subject studied is tested daily at the blackboard, and he will be required to apply the principles taught to the solution of practical problems. Written solutions of selected problems will be required at stated intervals.

The subjects pursued are as follows :

First year—Arithmetic, Elementary Algebra.

Second year—Elementary Algebra, Geometry.

Third year—Advanced Algebra, Geometry, Trigonometry.

Fourth year—Analytical Geometry, Mechanics, Calculus.

For instruction in geometry the department is supplied with a full set of Schroeder's models, imported for this institution.

Text-books—Arithmetic, *Robinson*; Algebra, *Schuyler*, *Wells*; Geometry, *Wentworth*; Trigonometry, *Wells*; Analytical Geometry, *Peck*; Mechanics, *Wood*; Calculus, *Peck*.

SPECIMEN EXAMINATION PAPERS.

The following are specimen examinations given to candidates for the fourth and third classes.

ENTRANCE EXAMINATION FOR FOURTH CLASS.

Arithmetic.—Define arithmetic, compound number, composite number and notation.

Name and illustrate the signs of operation.

What characters are used to express numbers in the Roman system of notation?

Define least common multiple.

Find the least common multiple of 16, 140, 210.

Find the prime factors of 2445.

What is a fraction?

Add $1\frac{1}{2}$, $2\frac{2}{3}$, $3\frac{3}{4}$, $4\frac{4}{5}$.

From $25\frac{7}{10}$ take $14\frac{1}{5}$.

What effect has annexing cyphers to a decimal fraction?
What prefixing?

Change to a common fraction and reduce to its lowest terms,
.5625.

Find the value of $12\frac{5}{8}$ cords of wood @ \$4.37 $\frac{1}{2}$ per cord.

From $11\frac{3}{4}$ lbs. Troy wt. take 10 lbs. 8 oz. 8 pwt.

Reduce 4 oz. 3 pwt. 19.8 gr. to grains.

ENTRANCE EXAMINATION FOR THIRD CLASS.

Arithmetic.—Write decimally, one thousand and fifty hundred thousandths.

Find the value of $8\frac{1}{9} + 5\frac{1}{5} - 2\frac{5}{6} - 3\frac{1}{10} + 3\frac{1}{12}$.

Find the value of $\frac{7\frac{4}{11} - 5\frac{1}{10}}{4\frac{1}{3} \text{ of } 2\frac{1}{5}}$

Find the greatest common divisor of 2572 and 396.

To $\frac{7}{9}$ of a mile add $\frac{3}{16}$ of a yard.

From $2\frac{3}{4}$ take $1\frac{1}{5}$.

Find the discount and the present worth of a note for \$275, payable in $5\frac{1}{2}$ months, discounted at 10 per cent per annum.

Find the interest at 8 per cent on \$425 for 2 years, 5 months, 18 days. What is the amount?

Change to decimals and add $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$.

A wine merchant sells wine at \$1.20 per gallon, thereby losing 20 per cent; at what price must he sell in order to gain 10 per cent?

How much carpet 1 yard wide will be required for a room 16 feet by 18 feet, and what would be the cost at \$1.37½ per yard?

What is the unit of measure in the French system, and how was it determined?

Define Interest, Commission, Stocks and Alligation.

Algebra.—Define Quantity, Coefficient, Term, Binominal, Polynomial and Algebra.

Mention the symbols used in Algebra.

Find the numerical value of $\{(a + b)c - d\}x + y\}y$, when $y = 6$, $x = 8$, $a = 2$, $b = 3$, $c = 4$, $d = 5$.

B has \$10 more than four times as much as A, and together they have \$90; how much money has each?

Divide $x^4 - 4x^3y + 6x^2y^2 - 4xy^3 + y^4$ by $x^2 - 2xy + y^2$.

Find the factors, the greatest common divisor, and the least common multiple of $a^4 - b^4$ and $a^2 + 2a^2b + ab^2$; also, of $x^2 + 2x - 3$ and $x^3 + 8x^2 + 15x$.

Explain each operation fully.

Divide $\frac{x^4 - y^4}{x^2y}$ by $\frac{x}{y} + \frac{y}{x}$

Given $\frac{4x}{5-x} - \frac{4(5-x)}{x} = \frac{15}{x}$; find value of x .

Given $\frac{a}{b+y} = \frac{b}{3a+x}$ and $ax + 2by = d$; find values of x and y .

POST-GRADUATE COURSES.

MATHEMATICS.

Analytical Geometry, Differential and Integral Calculus, Differential Equations.

DEPARTMENT OF VETERINARY SCIENCE.

Associate Professor, M. FRANCIS, D. V. M.

The work of this department will begin with a study of comparative physiology, a definite understanding of the subject being

absolutely essential before entering the study of diseases. The principles of physiology are taught by lectures, recitations, and actual demonstration by a living subject, thus enabling the students to thoroughly acquaint themselves with normal appearances.

Members of the second class will begin the study of veterinary medicine, embracing both didactic and clinical lectures on equine, bovine and canine pathology.

The instruction to the first class will embrace six grades of work:

1. Comparative anatomy will occupy one hour per week, the horse being the subject of special study. The lectures will be illustrated by actual dissection of the cadaver.

2. Veterinary surgery will be taught by lectures, and students will be required to perform minor operations, both on living subjects and cadaver.

3. Materia medica will be taught by a thorough discussion of drugs used by the Veterinarian. These lectures are illustrated by specimens both crude and refined, and the mode of compounding and administering the same.

4. OBSTETRICS.—This important subject will be thoroughly taught, embracing a discussion of the various modes of reproduction, the natural methods by which it is accomplished, and all abnormalities incident to parent and offspring. The lectures will be illustrated by drawings, natural and artificial preparations.

5. Horseshoeing will be presented by a few lectures on physiological, orthopedic and surgical shoeing.

6. Laboratory work will consist of the microscopical study of the tissues of the body, their mode of hardening, sectioning, staining and mounting, both by the paraffine and celloidin processes. Each student is provided with a first-class compound microscope, ranging from 50 to 400 diameters, and all necessary requisites to prosecute the work.

DEPARTMENT OF DRAWING.

Associate Professor, F. E. GIESECKE, M. E.

The course of instruction given in this department extends through four years; the work done in the different classes is shown in the following outline of the course of study:

FOURTH CLASS—*Penmanship and Free Hand Drawing*—Three hours per week during fall and winter term, and one and one-half hours per week during spring term. The lessons in penmanship tend to teach the student to write a plain and rapid business hand, by means of the muscular movement. The instruction in free hand drawing is intended altogether as means of training the student's hand and eye, as well as his mind. The lessons are therefore carefully graded; beginning with simple exercises from the blackboard and from dictation. they advance to the study of plane and solid geometric forms from skeleton models, to drawing in outline and perspective from solid models, and later to lettering, and to drawing from memory objects with which the student has become familiar in the shops.

THIRD CLASS—*Agricultural Course*: Free hand drawing one and one-half hours per week throughout session. Students make free hand drawings from models, casts, and still life. In this way the training begun in the fourth class is continued, and in addition the student acquires some skill in an art which will always be useful to him.

SECOND CLASS—*Agricultural Course*: Mechanical drawing two hours per week during spring term. This short course in drawing is given to enable the student to make the drawing necessary in his study and practice of surveying.

THIRD CLASS—*Mechanical Course*: Mechanical drawing three hours per week throughout session. The student is taught the use of the drawing instruments in the drawing of simple figures, geometrical problems, higher plane curves, gear teeth and letters. Practice in free hand drawing is continued in this as well as

in the two higher classes as an essential part of the regular work.

SECOND CLASS—*Mechanical Course:* Descriptive geometry three hours per week during fall and two hours during winter term. Faunce's Descriptive Geometry is used as a text book and is supplemented by weekly original problems. Mechanical drawing two hours per week during fall and winter terms and four hours during spring term. The student makes such drawings of different parts of machines as involve the principles he studies in descriptive geometry.

FIRST CLASS—*Mechanical Course:* The student makes working drawings, general and detail, of machines, bridges, or buildings, or of such instruments or structures as is thought advisable. Blue-printing and tinting are also taught. Those students who apply for the degree of B. M. E. give special attention to machinery, while those applying for the degree of B. C. E. devote most of their time to roof and bridge trusses; the latter also receive some instruction in topographical drawing. The department is equipped with a good set of skeleton and solid models and casts for free hand drawing; a complete set of Schröder's models for descriptive geometry and a number of drawing instruments which are not used often enough to justify a student in purchasing them. The students can obtain all necessary instruments and material from the College book store at cost.

DEPARTMENT OF HORTICULTURE AND BOTANY.

Associate Professor, S. A. BEACH, B. S. A.

Assistant, H. NESS, B. S.

The design of the course in horticulture is to combine with the technical work of the department such instruction in related sciences and such general education as will best prepare the student for the highest demands of horticultural industry. Throughout the course instruction is given on subjects of general importance not enumerated below. For the first two years the courses in agriculture and horticulture are identical.

ENTOMOLOGY.

Elementary instruction by means of lectures, laboratory dissections and text book is given in this subject during the fall term of the third year, and the study of injurious insects is required in the spring term of the fourth year.

BOTANY.

First Year.—In the spring term the subject of botany as outlined in Gray's First Lessons is taught, and a herbarium of fifty neatly mounted specimens required.

Second Year.—In the spring term the subject of systematic botany is taught and the student adds fifty more specimens to his herbarium.

Third Year.—In the fall term advanced work in structural botany is taken up. Each student spends two and a half hours per week in the botanical laboratory and with the aid of a compound microscope examines the minute structure of stem, root, leaf, flower and fruit of various plants. Recitations accompanying this work are from Vol. I of Gray's Botanical Text Book. Thirty specimens of flowering plants are added to the student's herbarium. In the winter term, vegetable anatomy and physiology is taught by recitations, accompanied with work in the botanical laboratory. In the spring term advanced work in vegetable physiology is pursued, using Vol. II of Gray's Botanical Text Book, accompanied with practice in cross-fertilization of fruits and laboratory work on injurious fungi.

Fourth Year.—In the fall term the subject of fungi and plant diseases is taught by lectures and laboratory work. Twenty-five specimens of flowerless plants are added to the student's herbarium. In the spring term lectures on forage plants are given, with analysis of important forage plants. Twenty-five specimens of this class of plants are added to the students herbarium.

HORTICULTURE.

First Year.—Instruction in garden work is given in the spring term.

Second Year.—During the fall and winter terms Barry's Fruit Garden is used as a text book, and lectures are given on culture, selection and propagation of the different varieties of fruit adapted to Texas. Practice is given in propagation by cuttings, grafting, budding, layering, and in pruning in orchard and vineyard. In the spring term instruction in vegetable culture is given in a similar manner.

Fourth Year.—The supporting studies of entomology, botany, chemistry, physics, etc., have prepared the student for advanced work in horticulture during his fourth year. In the fall term a dissertation on some special topic or line of work under some professor of the course is required. The length of the dissertation must be at least ten minutes. It must be completed at least four weeks before the close of the term. The subject of forestry is also required during this term. It is taught by recitations and field practice. In the winter term landscape gardening is presented by means of lectures. Similarly the propagation of ornamental trees and shrubs is presented, and practice is given in horticultural experiments, greenhouse and nursery operations. Instruction in plant breeding and variation is given by lectures during the spring term, with practice also in horticultural experiments.

DEPARTMENT OF CIVIL ENGINEERING AND PHYSICS.

Associate Professor, J. C. NAGLE, B. Sc.

CIVIL ENGINEERING.

The course of study in this department begins with the third year, or second class, and extends through two years. The studies are taken up in the following order:

SECOND CLASS—First Term.—Road making and maintenance. The importance of this branch of engineering can not be overestimated, especially in its relation to the common roads of our State at the present time, and the text books are supplemented by lectures on the best methods of modern construction and the application to typical Texas localities.

Second Term.—A series of lectures on graphic statics with applications to roof and bridge trusses, etc. The student is required to work up fully a number of different types of trusses for symmetrical, unsymmetrical, snow, and wind loading.

Third Term.—Land surveying and topographic surveying. The instruments are first described and studied in the class room and afterward taken into the field and the student familiarized with the methods of solving just such problems as constantly occur in actual practice.

FIRST CLASS—*First Term.*—Railroad surveying; the location, construction and maintenance of railroads. The students are taught how to run out preliminary and location lines, and afterward to set slope stakes based on a grade line best suited to the profile. They also calculate the amount of excavation and embankment and probable cost of construction.

Second Term.—Mechanics of materials, practice with the testing machines and field practice in suitable weather.

Third Term.—Stresses in roofs and bridges with engineering field practice. Thesis.

The engineering equipment of the College is unusually complete and includes the following instruments: One transit with solar attachment; one railroad transit; one surveyor's transit; three engineer's Y levels; two drainage levels; one Burt's solar compass; four other compasses; one plane table, and an abundant supply of chains, pins, level rods, stadia rods, flag poles, etc. The department also owns two fine Rhiele Bros. testing machines—one for cements and mortars, and the other of 20,000 pounds capacity, arranged for the tests of tension, compression and cross-breaking of solids, such as wood, iron and stone.

PHYSICS.

THIRD CLASS.—*First Term.*—General properties of matter, mechanics, pneumatics, hydrostatics, accoustics and heat.

Second Term.—Optics, electricity and magnetism.

Third Term.—More advanced course in electricity and magnetism.

SECOND CLASS.—First Term.—Heat.

The department is supplied with apparatus for illustrating and verifying the laws enunciated in the text.

The constant aim in both civil engineering and physics is to develop as much as possible independent reasoning on the part of the student and to that end he is constantly called on to work out special problems bearing on the subject he is studying.

POST GRADUATE COURSES.**CIVIL ENGINEERING.**

Geodesy; hydrographic surveying; hydraulic and water supply engineering; strains in frame structures; applied mechanics; theory of the strength of materials and experimental work with testing machines; designing and drawing; thesis.

PHYSICS.

Advanced work in sound, heat, light and electricity; work in laboratory.

TEXT BOOKS.

Third Class.—Physics, *Peck's Ganot, Deschanel.*

Second Class.—Road Making, *Gillespie*; Physics, *Deschanel*; Surveying, *Carhart (?)*, *Johnson (?)*.

First Class.—Field Engineer, *Shunk*; Roofs and Bridges, *Merriman*; Mechanics of Materials, *Merriman*; Trusses and Arches, *Greene*.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

Professor, BENJ. C. MORSE, Lieut. 23d Infantry, U. S. A.

The instruction in this department is in conformity with the act of Congress which, in endowing this and similar institutions, stipulates that military tactics shall be taught.

An officer of the regular army is detailed by direction of the President of the United States to carry out this requirement of the act in question, and the necessary arms, accoutrements and ammunition are furnished by the general government without cost to the College.

During the fall and spring terms practical military instruction is given in infantry and artillery drills, rifle firing, and the duties of guards and sentinels. During the winter term all military exercises are suspended except the necessary guard. A course of lectures is delivered to the first class, embracing the duties of guards and sentinels, military signaling and engineering, military law, the preparation of the usual returns and reports pertaining to a company, the organization and administration of the United States Army, and the elements of the art and science of war.

During this term the second class receives instruction in the section room in infantry tactics.

While the instruction in this department is as thorough as practicable in the limited time allowed, in liberal compliance with the requirements of the act of Congress endowing the College, it is not proposed to graduate soldiers. Practical military exercises are held at such hours as not to conflict with academic duties of students. The physical training of such exercises has the effect of straightening and strengthening the students, giving them an erect carriage and graceful bearing.

The military system is the means of enforcing discipline and securing regularity in the performance of academic duties, and tends to inculcate in the students that habit of truthfulness and manliness of character which characterize young men as gentlemen.

COMMERCIAL DEPARTMENT.

In this department will be taught the science of single and double entry bookkeeping, the laws governing commercial transactions, and the philosophy and morals of business.

The method of instruction will be by lectures and recitations, with exercises in opening, conducting and closing books and in the preparation of accounts current and all other business forms.

Alumni.

ALUMNI ASSOCIATION.

(Organization for 1890-91.)

W. WIPPRECHT, 1884	President.
J. D. FEARHAKE, 1889	First Vice President.
T. H. HOPKINS, 1890	Second Vice President.
R. L. VAN ZANDT, 1890	Third Vice President.
J. M. CARSON, 1886	Secretary and Treasurer.
T. D. ROWELL, 1885	Editor College Journal.

EXECUTIVE COMMITTEE :

W. Wipprecht, 1884, J. M. Carson, 1886, W. P. Philpott, 1884.

From the opening of the College in 1876 to its reorganization in 1890, the studies were elective. There were many graduates during that period in one or more departments.

Names of deceased alumni are marked †.

The present occupations of the alumni are given so far as known, but information as to these are not readily accessible, and errors may be found in that given here. The alumni are requested to aid the president in making their roll as complete as possible, as a means of conveying to each trustworthy intelligence of all the others.

1878.

GERMAN—R. A. Rogers, W. A. F. Trenckman.

LATIN—R. A. Rogers.

1879.

LATIN—A. Cunningham, P. L. Downs, F. W. Fort, J. R. Downs, D. M. Jack, E. Y. Mullins, R. A. Rogers, W. M. Sleeper.

GREEK—A. Cunningham, P. L. Downs, F. W. Fort, R. A. Rogers, W. M. Sleeper.

GERMAN—S. Baker, A. L. Banks, W. H. Brown, M. L. Chambers, A. Cunningham, P. L. Downs, J. R. Downs, F. W. Fort, T. A. Fuller, D. M. Jack, L. J. Kopke, E. Y. Mullins, F. A. Reichardt, Charles Rogan, R. A. Rogers, W. M. Sleeper, H. G. Smythe, W. A. F. Trenckman, K. M. Van Zandt.

FRENCH—J. J. Baker, E. G. Cochran, W. A. F. Trenckman.

SPANISH—J. J. Baker, T. H. Brown, D. Campbell, J. H. Haden, W. A. F. Trenckman.

MENTAL AND MORAL SCIENCE—J. J. Baker, M. Black, E. G. Cochran, W. A. F. Trenckman, D. M. Jack, R. A. Rogers.

ENGLISH LANGUAGE AND LITERATURE—M. Black, E. G. Cochran, J. J. Baker, D. M. Jack, Charles Rogan, R. A. Rogers, W. A. F. Trenckman.

MATHEMATICS—A. Cunningham, L. J. Kopke, W. M. Sleeper.

CHEMISTRY AND NATURAL SCIENCE—Charles Rogan, A. Cunningham, W. A. F. Trenckman.

1880.

ENGLISH—C. S. Miller, F. F. Bledsoe, D. E. Alexander, E. E. Fitzhugh, T. E. Blakemore.

GREEK—F. F. Bledsoe.

LATIN—D. E. Alexander, C. S. Miller, E. E. Fitzhugh.

MATHEMATICS—E. E. Fitzhugh, D. E. Alexander, Thomas E. Blakemore.†

1880.

L. J. Kopke, C. E. Engineer
W. H. Brown, C. E. Lawyer

1881.

G. H. Dugan Stockraiser

1882.

COURSE.

M. F. Armstrong	Mechanical .	Farmer, Pro. C. H. F. C.
Searcy Baker	Mechanical .	Merchant.
J. M. Burford	Mechanical .	Druggist, Physician.
F. R. Von Biberstein	Mechanical .	
J. R. Cravens	Mechanical .	Civil Engineer.
C. S. Graves	Mechanical .	Civil Engineer.
S. A. Hare	Mechanical .	Lawyer.
R. S. Lipscomb	Mechanical .	Physician.
David Rice	Mechanical .	Lumber Man'facturer.
Robert Sawyer	Mechanical .	Lumber Dealer.
Aaron Talbot	Mechanical .	Farmer.
D. H. Watson	Mechanical .	Horticulturist.

1883.

COURSE.

J. C. Caldwell †	Mechanical .	Civil Engineer
J. F. Edwards	Mechanical .	Civil Engineer.

COURSE.

Osborne Kennedy	Mechanical .	Lawyer.
H. J. Miller	Mechanical .	Merchant.
W. E. Mosley †	Mechanical .	
A. T. Patrick	Mechanical .	Lawyer.
W. L. Tuller	Mechanical .	Real Estate Agent.
J. M. Wesson	Mechanical .	Lawyer.

1884.

COURSE.

G. W. Roach	Mechanical .	Supt. City School.
W. Wipprecht	Agricultural .	Chem. Agl. Ex. Sta. of La.
J. L. Gray	Mechanical .	Civil Engineer.
T. B. McQueen	Mechanical .	Merchant.
N. A. Dawson	Mechanical .	Lawyer.
F. C. Von Rosenberg	Mechanical .	Lawyer.
B. C. Makensen	Mechanical .	Architect.
A. L. Shirley	Agricultural .	Railroad Agt., Farmer.
R. E. Pennington	Agricultural .	Lawyer.
G. Giesecke	Mechanical .	Sec. and Gen. Man. San Antonio Gas Works.
R. B. Green	Mechanical .	Merchant.
W. B. Philpott	Mechanical .	Asst. Prof. A. & M. C.
B. E. Knolle	Mechanical .	Physician.
V. Andrews	Mechanical .	Teacher.

1885.

COURSE.

W. Wipprecht	Agricultural .	Chem. Alg. Ex. Sta. of La.
J. N. Davis	Mechanical .	Supt. City Schools.
F. L. Pfeuffer	Mechanical .	Merchant.
W. Whitaker	Mechanical .	Contractor.
T. D. Rowell	Agricultural .	Lawyer.
F. Caruthers	Agricultural .	Teacher.
F. E. Dudley	Mechanical .	Druggist.
L. Makensen	Mechanical .	Watchmaker.
C. H. Pescay	Mechanical .	Bookkeeper.
S. Hough	Mechanical .	
E. W. Spann †	Mechanical .	

1886.

COURSE.

D. Adriance	Agricultural .	Asst. Chem. Tex. Exp. Sta., A. & M. C.
F. E. Giesecke	Mechanical .	Asst. Prof. A. & M. C.
M. D. Tilson	Mechanical .	Civil Engineer.

COURSE.

H. L. Wright	Mechanical .	Civil Engineer.
I. A. Cottingham	Mechanical .	Civil Engineer
E. A. Whitlock	Mechanical .	Prof. Math. A. & M. C., N. Dakota.
J. W. Carson	Agricultural .	Asst. Agl. Ex. Sta.,
C. L. Burchard	Mechanical .	Assistant Postmaster.
J. M. Carson	Agricultural .	Asst. Prof. Agr., A. & M. College
W. F. Woodward	Mechanical .	Merchant.
C. C. McCulloch	Mechanical .	Asst. State Geol. Survey.

1887.

COURSE.

G. A. Rogers	Mechanical .	Bookkeeper.
F. L. Fordtran	Agricultural .	Physician.
J. H. Freeman	Mechanical .	Railroad Office.
H. J. McNair	Mechanical .	
T. B. West	Mechanical .	
L. E. Allen	Mechanical .	Clerk.
E. R. Knolle	Mechanical .	Physician.
J. B. Hereford	Mechanical .	Insurance Agent.
H. C. Hare	Mechanical .	Lawyer.
E. Gruene	Mechanical .	Merchant.

1888.

COURSE.

W. H. Allen	B. S. A. . . .	Druggist.
Paul Braun.	B. M. E. . . .	Draughtsman S.P.Shops, Houston.
R. H. Dietert	B. M. E. . . .	Draughtsman S. P. Shops, Houston.
F. C. Hoffman	B. M. E. . . .	Watchmaker.
H. F. Jonas	B. C. E. . . .	Draughtsman S.P.Shops, Houston.
N. L. Josey	B. S. A. . . .	Merchant.
A. P. Knolle		Physician.
W. H. Knolle.	B. C. E. . . .	Merchant.
W. O. R. Pfeuffer	B. S. A. . . .	Farmer.
F. Rennert	B. S. A. . . .	
Z. M. Shirley	B. M. E. . . .	Student.
E. J. Smith	B. S. A. . . .	Lawyer.
W. W. Steward	B. M. E. . . .	Miller.
M. S. Swain.	B. S.	Lawyer.
P. S. Tilson.	B. S. A. . . .	Asst. Prof. A. & M. College.

COURSE.

W. M. Wood	B. C. E	Civil Engineer.
W. A. Wurzbach	B. C. E	Lawyer.

1889.

COURSE.

Louis Daniel Amsler	B. M. E	Miller.
Charles A. Buckman	B. C. E	Engineer.
Lawrence Burroughs Burck	B. C. E	Railroad Agent.
William Elizabeth Drisdale	B. S.	Student.
John D. Fearhake	B. C. E	Railroad Employee.
Edward Walthall Hutchinson	B. C. E	Bookkeeper.
Walter Toole Jones	B. C. E	Civil Engineer.
John Frank Kuehne	B. M. E	Mech. Engineer.
William Wirt K. Legget	B. C. E	Civil Engineer.
Robert Mabry	B. C. E	Drummer.
William Brady Merritt	B. S. A	Student.
Earl Sloan Middlebrook	B. C. E	Foreman Lumber Mill.
Frank Lillard Montgomery	B. S. A	Farmer.
Helge Ness	B. S.	Asst. Prof. Hort. A. & M. Col. of Texas.
Joseph Francis Nichols	B. S.	Student.
James Route Nichols	B. S. A	
Benjamin Freeman Rogers	B. C. E	Merchant.
Merideth William Shirley	B. M. E	Merchant.
William Morton Shirley	B. C. E	Farmer.
W. D. Anderson	B. S. A	Wichita Falls.
W. F. Brittingham	B. C. E	New York City.
U. Bacchus	B. M. E	Eagle Pass.
H. C. Flynt	B. S. A	Waelder.
R. Hanschke	B. M. E	New Haven, Conn.
S. J. Hernstedt	B. C. E	Sherman.
S. H. Hopkins	B. S. A	Waelder.
J. A. Kyle	B. S. A	Nursery.
W. S. Rudasill	B. C. E	Sherman.
J. W. Ragsdale	B. S. A	Flatonia.
J. S. Radford	B. S. H	LaGrange.
C. L. Schmidt	B. M. E	Laredo.
B. L. Van Zandt	B. C. E	Fort Worth.
A. E. Wangemann	B. S. A	Brenham.





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